WOOD GASIFYING BOILER

ATTACK DPX

STANDARD / PROFI / LAMBDA

INSTRUCTIONS FOR USE

WWW.ATTACK.SK

ATTACK DPX – Wood gasifying boiler

- Assembly, control heat up and attendance training is perfomed by field engineer trained by producer, who also fills in the protocol about boiler installation.

- At wood gasification, it comes to formation of tar and condensates (acids) in the fuel chamber. Therefore the mixing device has to be installed with the boiler to keep minimum temperature of the return water into boiler at 65°C.

Operation temperature of the water has to be in the range of 80-90°C.

- The boiler cannot permanently operate in the outout range lower than 50%.

- When using the circuiting pump, its operation has to be controled by detached thermostat to ensure prescribed minimum temperature of return water.

- Boiler operation is ecological at nominal output.

- Therefore we recommend to install boiler with accumulation tanks and mixing device, which ensures fuel saving of 20-30% and longer boiler and chimney life-time, together with more comfortable attendance.

- If you cannot connect the boiler into accumulation, we recommend connect the boiler at least with one equalisation basin with approximate volume of 25l per 1kW of the boiler´s output.

- Daily heating-up is necessary, when the boiler operates at lower output (summer operation and D.H.W. heating).

- Use only dry fuel with humidity of 12-20% (output decreases with increasing humidity and fuel consumption is increased).

- Correct boiler choice, i.e. its heating output is very important condition for economical operation and correct boiler function. The boiler has to be chosen by nominal output adequate to temperature losses of heated object.

- Boiler can be used only for purpose that it is intended to and only in the way described in this manual.

⚠ **WARNING – After disconnection of operating boiler from electricity mains, the burning continues further in attenuation regime. Do not open boiler door, until the boiler temperature decreases under 40°C.**

Guarantee for boiler is not valid if:

-it is not operated with prescribed fuel -not with wood of humidity lower than 20% or if it is used with the fuel that is not prescribed by producer

- the mixing device Regumat ATTACK-OVENTROP is not installed in the system to ensure temperature of return water into boiler at least at 65°C

- functional thermostatic valve is not installed in the aftercooling circuit of the boiler (WATTS STS20), connected to the cold water source.

This device is not intended for usage by persons (including children) that are physically, sensually, mentally or due to unsufficient experiences and knowledge unable to use it safely without being under control or being instructed to use by person responsible for their safety. It is necessary not to allow children to play with the boiler.

If the electrical cord is broken, it has to be replaced with special cord, available from producer or service technician!

Be carefull while using the device! The Lambda probe works at high temperatures (300°C) and by uncareful manipulation there is a danger of scorch!

Warning sign

This warning sign always appears in the instruction manual, when it is necessary to warn about possible bodily injury and material damages, if this manual is not kept properly.

Two types of warning signs are used in this manual:

WARNING Warns about life-dangerous situations and situations that may cause bodily injury and damages, in case that necessary actions were not kept.

ATTENTION warns about less safe work methods and processes that may cause bodily injury or material damages.

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Introduction:

Dear customer,

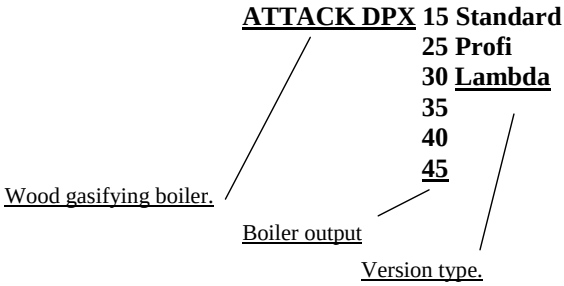
thank you for confidence that you showed us by purchasing our product - the ATTACK wood gasifying boiler. We wish you long and reliable operation. Proper attendance of the boiler is one of the conditions for reliable and correct operation, so please read this instruction for use carefully. The manual is written in the way to respect the correct operation of the boiler.
The most important conditions of correct boiler operation are following:
- choice of the right type and output of the boiler
- impeccable putting into operation
- sensitive attendance
- regular technical maintenance
- reliable service

General description

Wood gasifying boiler	ATTACK DPX
Name:	WOOD GASIFYING BOILER ATTACK DPX 15, 25, 30, 35, 40, 45, IN DESIGN „STANDARD“, „PROFI“, „LAMBDA“
Type:	ATTACK DPX 15, 25, 30, 35, 40, 45
Max.operation pressure:	250 kPa
Water volume:	80, 100, 110, 128 l
Electr. connection:	230 V/50 Hz/10 A
Electr. output:	60 W
Fuel:	Dry wood with heat value of 15 - 17 MJ/kg, humidity of 12 - 20%, diameter 80 až 150 mm
Nominal output:	15, 25, 30, 35, 40, 45 kW

The ATTACK DPX wood gasifying boiler is intended for economic and ecological heating of family houses, bungalows, small plants, workshops and similar objects.
Specified fuel for ATTACK DP boilers is dry wood, e.g. logs of lengths, depending on the type of boiler.

Description of the ATTACK DPX labelling:

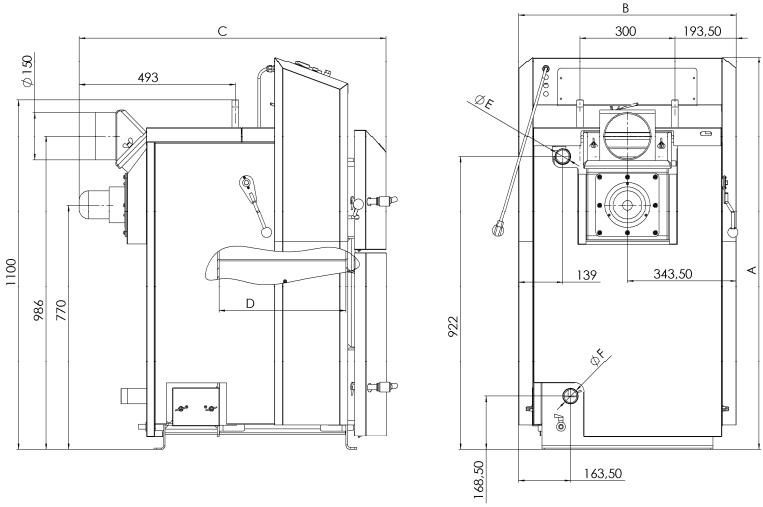


Technical parameters:

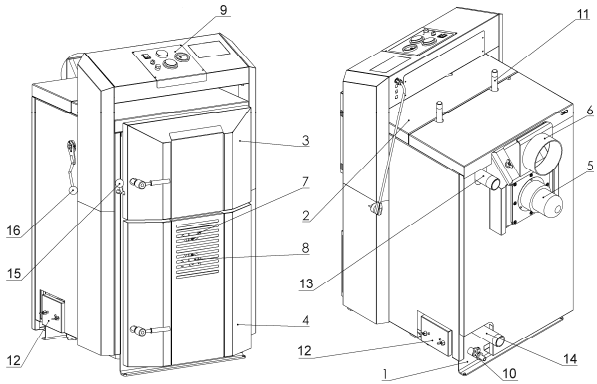
Boiler type		DPX15	DPX25	DPX30	DPX35	DPX40	DPX45
Boiler output	kW	15	25	30	35	40	45
Surface of exchanger	m²	1,98	2,52	2,78	2,78	3,03	3,03
Volume of fuel chamber	dm³	65	96	112	112	128	128
Dimension of feeding opening	mm	235x445	235x445	235x445	235x445	235x445	235x445
Prescribed chimney draught	Pa	23	23	23	23	23	23
Max. operation overpressure of water	kPa	250	250	250	250	250	250
Pressure loss of water (ΔT 10K)	kPa	1,9	2,3	4,4	4,4	6,6	6,6
Pressure loss of water (ΔT 20K)	kPa	0,6	0,7	1	1	1,8	1,8
Boiler weight	kg	370	430	460	460	490	490
Diameter of flue gas connection	mm	150	150	150	150	150	150
Boiler height – „A“	mm	1240	1240	1240	1240	1240	1240
Boiler width – „B“	mm	700	700	700	700	700	700
Boiler depth – „C“	mm	840	1240	1340	1340	1440	1440
Depth of chamber – „D“	mm	400	590	690	690	790	790
Protection of electrical parts	IP	21	21	21	21	21	21
Electric output	W	50	50	50	50	60	60
Boiler efficiency	%	89	89	89	89	90	90
Boiler class		5	5	5	5	5	5
Flue gas temperature at nominal output	°C	170	170	180	180	190	190
Substantive flue gas overflow at nominal output	kg/s	0,019	0,019	0,021	0,021	0,027	0,027
Maximum noise level	dB	65	65	65	65	65	65
Prescribed fuel	Wood logs with relative humidity of 12 % – max. 20 %, Æ 50–150 mm						
Average fuel consumption	Kg/h	3,9	6,5	7,8	9,1	10,4	11,75
Consumption per season	1 kW = 1 m³						
Maximum length of wood logs	mm	350	550	650	650	750	750
Burning time at nominal output	hod	3	3	3	3	3	3
Volume of water in boiler	l	80	100	110	110	128	128
Minimum volume of equalisation basin	l	375	625	750	900	1000	1200
Connection voltage	V/Hz	230/50					
Range of settings of heat. water temp.	°C	65-90					
Range of setting of room temperature (PROFI version)	°C	10-27					
Power handling capacity of boiler regulator´s contacts (PROFI version)	V/A	230/2					

Acoustical pressure level A does not exceed 70dB (A).
Immediate top value of acoustical pressure C does not exceed 63 Pa.
Prescribed min. temperature of return water in operation is 65°C.
Prescribed operation temperature of water in boiler is 80-90°C. Producer, the ATTACK, s.r.o. reserves right of technical changes of products without previous announcement!

Dimensions of the ATTACK DPX boilers



	DPX15	DPX25	DPX30	DPX35	DPX40	DPX45
C.H. flow connection – „E“	G6/4“	G6/4“	G6/4“	G6/4“	G2“	G2“
C.H. return connection – „F“	G6/4“	G6/4“	G6/4“	G6/4“	G2“	G2“

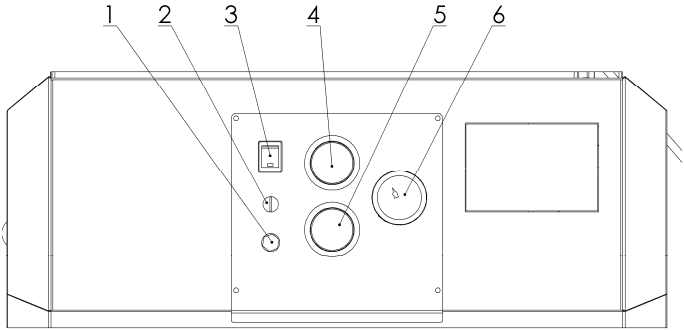


1. BOILER BODY
2. UPPER CAP
3. FEEDING DOOR
4. ASH PAN DOOR
5. SUCTION FAN
6. CHIMNEY
7. PRIMARY AIR FLAP
8. SECONDARY AIR FLAP
9. INSTRUMENT PANEL
10. DISCHARGE VALVE
11. COOLING CIRCUIT
12. COVERING OF CLEANING OPENING
13. C.H. FLOW CONNECTION
14. C.H. RETURN CONNECTION
15. PULL ROD OF THE CHIMNEY FLAP
16. LEVER FOR EXCHANGER CLEANING

Instrument panel

ATTACK DPX STANDARD

The wood gasifying boiler "ATTACK DPX Standard" is controled by boiler and flue gas thermostat.



1 – Emergency thermostat with reset
2 - Fuse
3 - Main switch
4 - Flue gas thermostat
5 - Boiler thermostat
6 –Thermomanometer

Description:

1. Emergency thermostat with reset - boiler protection against overheating (after reaching temperature higher than 110°C it comes to boiler disconnection from electricity mains) after decrease of water temperature under 85°C it is necessary to push the restart button manually after removing cover of reset .
2. Fuse - boiler protection against short circuit
3. Main switch - boiler start and complete boiler stop for the case of need.
4. Flue gas thermostat - at decrease of flue gas temperature under adjusted value is the fan switched off

   ATTENTION! While heating-up, set this thermostat to 0°C. After fuel burn-out set the flue gas thermostat to „Operation“. When the temperature decreases under adjusted value, the suction fan is switched off. If you wish to turn the fan on again, set the lower temperature on the flue gas thermostat. It is necessary to test the optimum setting for operation.

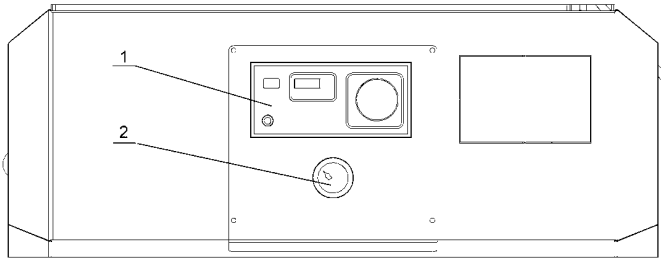
5. Boiler thermostat - serves for setting of max. temperature of water in boiler (after exceeding of adjusted value is the fan switched off and boiler works at minimum output, after decrease of given temperature is the fan switched on again and boiler works at maximum output).
6. Thermomanometer - indicates outlet water temperature from the boiler and operation pressure.

Pull rod of the chimney flap - serves to open and close the heat-up flap (everytime the feeding door is opened).

Lever for exchanger cleaning - serves for cleaning of exchanger´s tubes

ATTACK PROFI

The ATTACK PROFI boiler version in comparison to the ATTACK STANDARD version represents higher comfort of attendance, possibility of output regulation and possibility to connect control and regulation elements.
Boiler temperature is kept at the level set at by user by means of control of the flue gas ventilator´s rotations. Boiler regulator of the ATTACK PROFI boilers performs permanent measuring of temperature of water in the boiler and indicates it on display. Regulator controls rotations of the flue gas ventilator and the central heating (C.H.) pump adequately to this temperature. To the boiler regulator, the flue gas thermostat is connected, that switches boiler into the mode of the fuel shortage control, when the flue gas temperature decreases under the set temperature. There is also an option to control the gear of the mixing 4-way valve.

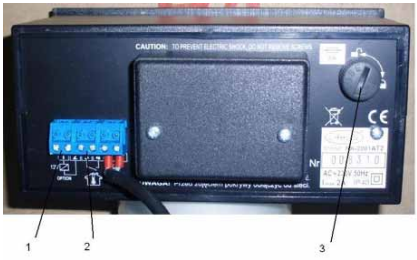


1 – Electronic regulator PROFI
2 – Manometer

Frontal view on electronic regulator

1 - Main switch
2 - Display indicating boiler temperature and parameters
3 - Control light of additional thermostat
4 - Button of boiler thermostat
5 - Button of additional thermostat
6 - Button STOP/parameter options/Alarm cancel
7 - Button START/ parameter options
8 - Start button of programming in service menu / confirmation of settings
9 - Control light of circuiting pump

Backward view on electronic regulator:



1 – Connection of mixing valve (12V)
2 – Connection of additional thermostats
3 – Fuse 2A

Techn. description and ways of regulation of the ATTACK PROFI boiler:

Boiler temperature is kept at the level set at by user by means of control of the flue gas ventilator´s rotations. Regulator measures temperature of water in boiler, indicates it on display and controls suction fan and circuiting pump. Regulator is equipped with additional flue gas thermostat and terminals to connect its sensor. Adequately to the situation, it is possible to use thermostat to set the flue gas temperature for indication of fuel shortage and boiler stop, or for setting of required temperature in the room. In dependence of the chosen usage, the sensor of the flue gas temperature or the sensor of the room temperature should be connected into terminals for connection of the flue gas thermostat and an adequate mode of regulation should be chosen through parameter setting. From production is thermostat used for setting of flue gas temperature. When it is set up for the first time, producer recommends to set value of the flue gas thermostat in the range of 100-120°C. Temperature is set by button of the additional thermostat in the temperature display mode. When the flue gas temperature decreases, the boiler is switched into the mode of fuel shortage. Design of appliance also enables connection of external contact thermostat into the terminals of the room temperature sensor.

Connection

Before you start appliance by the main switch, connect regulator, ventilator, circuiting pump and connection cords into suitable sockets in the rear part of appliance. Sensor of boiler temperature has to be placed into the boiler case.

⚠ WARNING! Before you connect regulator into the mains, check, if it is properly grounded and if the terminal screws are fitted well.

⚠ ATTENTION! Max. total output of the appliances connected regulator must not exceed 450W.

⚠ ATTENTION! – For extended function of regulator, it is possible to connect the UM-1 Module that enables control of additional boiler or C.H. pump.
Connection of additional appliances to module´s contacts have to be separated by appropriate relay.
The unused contacts of this module can stay unconnected.

Operation

After start of appliance, all points of display light for a while to check their correct function. After reset, the regulator switches back to the last state before stop or power shortage.
Basic operation of appliance is controlled by setting of required boiler temperature set by thermostat, all other functions are performed adequately to parameters programmed in the service mode. In case that the boiler temperature setting is changed by the boiler temperature button, the change is indicated on display for several seconds (e.g. **[C 75]**) and this value represents temperature that will the regulator struggling to achieve. This

value can be checked in the temperature display mode. In accordance to the type of installation and service settings can be the button of additional thermostat used to set flue gas temperature or room temperature. From production is this button intended to set the flue gas temperature. When the flue gas temperature decreases under the set value, the regulator switches into the mode of fuel shortage control and after the set time period - parameter **[Fb30]** - is the boiler stopped. This function prevents from eventual discharging of accumulation tank after fuel burn-out in the boiler, when - after expiration of time set by parameter **[Fb30]** - ensures boiler operation stop to avoid of inverse heat flow from charged accumulation tank into cold boiler. Change of position of the button of additional thermostat is for few seconds indicated on display, e.g. **[100°]**.
Actual value of this setting can be also checked in the temperature display mode.
If the flue gas temperature is in the operation mode after burning-up lower than the value set by the button of additional thermostat, then the suction fan and the circuiting pump are blocked, which is signalized by flickering of additional thermostat´s control light. In this case it is necessary to decrease the adjusted flue gas temperature value by the button of additional thermostat, until the control light stops to flicker. Consequently it comes to restart of the suction fan and circuiting pup operation.

When the fuel is being burned-down and the flue gas temperature decreases under the value set by flue gas thermostat, the boiler is switched into the fuel shortage control mode and after expiration of the set time – parameter **[Fb30]** – it comes to automatic boiler stop.

It is necessary to make setting of the boiler stop at flue burn-down adequately to flue gas temperature, when the boiler is started-up and then to check it from time-to-time.

After pressing the START button, ventilator starts to work and the control process begins. Ventilator is stopped by the STOP button.
If the regulator is not in the operation mode, temperature of water in the boiler is indicated on display.
Example: **[70°C]** - STOP mode
[70°C] - Operation mode
[70°C] - Fire keeping in operation mode

Manual start of ventilator

During the boiler operation might the user need to turn the fan on manually (e.g. for suction of gas from boiler before and during fuel load). After pressing and holding of START button for 3 seconds, the ventilator starts. Ventilator will work for period set in service mode or until the STOP button is pressed.

Temperature display mode

To enter into the temperature display mode, press the OK button. Enter into this mode will be indicated by quick flickering of the additional thermostat´s control light. Use buttons < and > to browse in the information displayed to different temperatures. To exit the temperature display mode, select **[END]** and press the OK button or wait for 1 min.

List of temperatures, which are disposable in the temperature display mode.

Indication	Parameter
C 80	Required boiler temperature
100°	Temperature set by the additional thermostat´s button (flue gas / room)
180°	Actual temperature of additional thermostat (flue gas / room)
End	Exit from menu of the temperature display

Required boiler temperature **[C 80]** - is temperature that the regulator tries to reach in the operation mode. It is set by direct turning of button of the boiler thermostat and it is indicated by short displaying.
Set temperature of the flue gas / room thermostat **[100°]** - this parameter indicates temperature set by additional flue gas / room thermostat. In accordance to installation of heating and setting of parameter FC (1 or 0) it represents the flue gas temperature (at lower actual temperature, the regulator switches into the fuel shortage mode) or the room temperature.

Actual flue gas temperature or room temperature **[180°]** - this parameter indicates actually measured flue gas temperature or room temperature.

Setting of parameters – service menu

When the OK button is held for longer than 3 seconds, it is switched to the service mode, where you can see and change programmed parameters. Service mode is indicated by flickering of the additional thermostat´s control light. It is possible to browse parameters by the + and - buttons. After selection of the required parameter you can switch into the mode for parameter change by pressing of the OK button - this mode is indicated by flickering of the parameter value. To change the value, use the + and - button. New setting can be confirmed by the OK button. Then it is possible to select next parameter (by + and -). If you wish to close service mode, select **[END]** by + and - and press OK or wait for 1 minute. Devices finishes service mode and starts to display boiler temperature. First column in the schedule represents display indications and in the next columns are: parameter description, minimum value, maximum permitted value of setting, step of parameter setting during adjustment, production settings to which it is possible to come by selecting of the **[Prod]** option.

Schedule: List of service parameters

Display	Parameter	Min	Max	Step	Production settings
⎍100	Max. Operation output of ventilator or max. output, when ⎍r 0-10	50	100	1%	100
n 40	Minimum output of ventilator	20	40	1%	40
⎍h 10	Ventilator speed, decrease of coefficient	2	40	1	10
⎍r 1	Automatic control of fan rotations and time of fan start	- -, 0	10	1	1
⎍n 5	Time of ventilator operation	- -, 5	60	1s	5
⎍u 6	Time of ventilator pause	1	99	1 min	6
⎍d 3	Time of ventilator operation in manual mode	- -, 1	99	1 min	3
P 65	Temperature of C.H. pump start-up	60	70	1°C	65
Ph 5	Hysteresis of C.H. pump	1	10	1°C	5
Pr 1	Operation mode of C.H. pump 0- Automatics 1- Pump operation depends on room temperature or on contacts of the room thermostat. 2- Pump operation depends on operation mode of regulator	0	2	1	1
Pc --	Pause of C.H. pump	- -, 1	99	1 min	--
Pd 2	Delay to stop the C.H. pump	- -, 1	99	1 min	2
L 65	Minimum boiler temperature	60	65	1°C	65
H 90	Maximum boiler temperature	80	95	1°C	90
h 5	Hysteresis of boiler temperature	1	10	1°C	5
A 105	Temperature of boiler overheating	95	105	1°C	105
Fc 1	Testing method of fuel shortage: 0- increase of temperature of water in the boiler 1- measuring of flue gas temperature	0	1	1	1
Fd 60	Time of measuring of fuel shortage during boiler start-up	- -, 1	99, 4h	1 min	60
Fb 30	Time of measuring of fuel shortage during operation	- -, 1	99, 4h	1 min	30
Ar 0	Operation mode of exceptional output: 0- output of start of separate boiler 1- alarm output 2- output controlling mixing valve 3- output controlling emergency after cooling system 4- output controlling next devices starting during the operation of the fan	0	4	1	0
Prod	Reset of production settings				
outP	Control of the C.H. pump	outP	out1		
out⎍	Control of fan output	out⎍	out2		
outr	Control of additional output	outr	out3		
End	Exit from service menu				

Operation parameters of flue gas fan

Fan output [П100] - this value defines fan output. When the "Пr" is on "0-10", it is max. fan output that can be reached during automatic fan operation.
Minimum fan output [n 40] - the lowest fan output, that can be used, when are the fan rotations controlled automatically and when the fan rotations continually increase during boiler start-up.
Coefficient of the fan speed decreasing [Пh10] - this parameter influences way of the fan speed decreasing, when the boiler temperature is near to required value. For example, setting of this parameter to the value of 2 means, that when is regulator in the operation mode and boiler temperature is for 2°C lower than the required boiler temperature, fan will work at max. output **[П100]**. Next increasing of boiler temperature causes continual decrease of the fan output up to its minimum **[n 40].**
Automatic regulation of the fan rotations [Пr 1] - is active, when this parameter is set to „0-10“ and causes automatic decrease of fan rotations, when temperature of water in the boiler reaches required temperature. If is the parameter set to „-“, then is the automatic decrease of fan rotations inactive and fan works at output set by the "П" parameter. Setting of the parameter value in the range from 0 to 10 means time in minutes of the continual increase of the fan speed from 40% up to the value "П" for correct boiler start.
Operation time of ventilator [Пn 5] - time of ventilator rotation that is necessary for suction of accumulated gas before and after loading. By setting the parameter to „-“ is the function inactive. This function can be activated in the OPERATION mode.
Ventilator pause [Пu 6] - time between operation periods of the fan.
Operation time of the fan in the manual mode [Пd 3] - this parameter determines, how long will the fan work, when it was activated manually. By setting of this parameter to „--“ is the option of manual fan operation inactive.

Parameters of the central heating pump.

Temperature of the C.H. pump start [P 65] - temperature of water in boiler that causes start of the C.H. pump. Circuiting pump works independently on boiler control process, but it is started by boiler control in case of boiler overheating.
Hysteresis of the C.H. pump [Ph 5] - this parameter defines at which value of decrease of the boiler temperature under the temperature of the pump start will be the pump stopped.
Operation mode of the C.H. pump [Pr 1] – the C.H. pump, independently on the operation mode, is always inactive, when the boiler temperature decreases under value set by the **[P 65]** parameter and it is always started, when the boiler temperature exceeds 90°C, when the boiler is overheated or when the temperature sensor is damaged. In remaining cases, the C.H. pump works in the mode set by parameter **[Pr]**

- **mode [Pr 0]** - permanent operation
- **mode [Pr 1]** - pump work depends on additional thermostat work mode. In **[Fc 0]** mode central heating pump is turned on when room temperature is too low (additional thermostat connection shorted or room temperature lower than

temperature set with additional thermostat knob). The pump is turned off when room temperature reaches desired value. In **[Fc 1]** mode central heating pump is turned on when measured exhaust gas temperature is higher than temperature set with additional thermostat knob. The pump is turned off when exhaust gas temperature drops below the set temperature.

- mode [Pr 2] – in this mode is the C.H. pump started only when the regulator is in the operation mode

Time of pause of the C.H. pump [Pc --] - when the boiler temperature exceeds the temperature set by parameter **[P 65]** and operation mode stops the pump (e.g. when the contacts of thermostat are open or when the fan is stopped), can the pump be regularly started for 30 seconds to pump water into the heating system. This parameter sets pause time in minutes between operation cycles of the pump. Setting of this parameter to „--“ inactivates this function.

Delay of the C.H. pump stop [Pd 2] – too early C.H. pump stop might cause boiler temperature increase and consequently its overheating. This parameter enables to set delay of the C.H. pump stop. Setting of this parameter to „--“ means, that the pump will be stopped without delay.

Setting of operation boiler temperature

Min. boiler temperature **[L 65]** - min. temperature, that can be set through rotary thermostat.

Max. boiler temperature **[H 90]** - max. temperature, which can be set through rotary thermostat.

Hysteresis of the boiler temperature **[H 5]** - this parameter defines, to which value should temperature of water in the boiler decrease, under value set through rotary thermostat to start the suction fan.

Boiler protection against overheating.

Temperature of boiler overheating [A105] – boundary value - after exceeding of this value is the suction fan indefinitely stopped and the circuiting pump is started to prevent from boiler overheating. The overheating mode is indicated by the control light of boiler overheating and error messaging **[E 2]** on display. Error can be turned off by pressing STOP button, but only when the boiler temperature decreases under the set value of the boiler overheating temperature. The suction fan is stopped also, when the boiler thermostat sensor is damaged and this error is displayed as message **[E 1]**.

Emergency thermostat – regulator has also additional protection against overheating, which is independent from processor. In case of temperature increase to 95°C , the control process is launched by ventilator stop and pump start. Ventilator and pump are included into the control process again, when the temperature reaches 89°C. Emergency thermostat enables more precise boiler regulation and eliminates possibility of overheating.

Fuel shortage testing

If central heating installation is equipped with exhaust gas temperature sensor (**[Fc 1]**), then fuel shortage testing starts when exhaust gas temperature falls below temperature set with additional thermostat knob. If there is no exhaust gas temperature sensor (**[Fc 0]**), then fuel shortage testing starts when boiler water temperature falls below value of **[L 65]**. If temperature tested during fuel shortage testing stays below threshold for specified time, the controller will stop regulation process and will show **[FUEL]** message on the display. This alarm can be erased with STOP button.
Fuel shortage control during the boiler start **[Fd 60]** - the time set by this parameter is used for fuel shortage control during the boiler start. Boiler is considered as started, when the regulator is switched from the STOP mode to WORK mode and finishes, when the boiler temperature exceeds minimum temperature set by the parameter **[L 65]**. Setting of parameter **[Fd 60]** to „--“ inactivates fuel shortage control during the boiler start.
Time of fuel shortage control in the operation mode [Fb30] – the time set by this parameter is used, when the fuel shortage control starts after the boiler was started. Setting of this parameter to „--“ inactivates fuel shortage control in the operation mode.

Additional output

Mode of additional output **[Ar 0]** - regulator is equipped with the multi-purpose output that can work under one of the following outputs:

- **Mode [Ar 0]** – can control oil or gas boiler, if it is connected into the heating system. When the regulator is started by the main switch, the additional boiler is stopped and it is started again, when there is already no fuel in the solid fuel boiler. This function is useful in the heating systems, where the solid fuel boiler is used to decrease the heating costs. When the fuel shortage alarm is removed by the STOP button, the additional boiler is stopped again and the regulator works again.
- **Mode [Ar 1]** - the outlet can control next system that signalizes alarm. Error of the boiler temperature sensor, overheating or in case of the fuel shortage is the next alarm started.
- **Mode [Ar 2]** - the outlet can control emergency cooling circuit of the boiler (e.g. pump). In this mode, the next outlet is started in case of the boiler overheating or of the boiler temperature sensor error alarm.
- **Mode [Ar 3]** - the outlet can control devices that are cooperating with compression fan.

ATTENTION - Devices should be connected to the next outlet by the UM-1 module (not included to delivery). Connection of the UM-1 module is described on the Pic.1.

Regulator outputs testing

To simplify the regulator control, it is possible to control the output circuits that regulate ventilator and pump and the circuits that control next boiler. By selection of **[outP]** on display and by pressing the OK button you can start the circuiting pump for a short time.

By selection of **[outΠ]** and pressing OK you can start the fan. By selection of **[outr]** and pressing OK you can start the additional boiler, system signalizing alarm or the servo-motor of the mixing valve. (if the next module is connected).

Production setting

Regulator offers possibility or reset the standard settings defined by producer by the **[Prod]** option in the service mode and by pressing the OK button. After activation of this function, device sets every parameter given in the schedule to the production setting.

Exit from menu

By selection **[End]** on display and by pressing of the OK button you can exit the service menu. Device closes the service menu also, if no button is pressed within 1 minute.

Additional functions

Regulator is equipped with additional thermostat and terminal for its connection. This thermostat is used from production to connect the flue gas thermostat. The **[Fc 1]** parameter – when the flue gas temperature decreases under the set value, regulator switches boiler into the mode of the fuel shortage control.
This thermostat can be used also as the room thermostat. Parameter **[Fc 0]**. In this case should be the sensor of the room temperature connected to the terminal of additional thermostat. The RK-2001AT2 compares measured room temperature with temperature set by additional rotary thermostat. When is the room temperature lower than the temperature set by thermostat, control light of the room thermostat will shine, because the boiler should keep the temperature set by the boiler thermostat. When the room temperature exceeds the set temperature, control light of the room thermostat expires and the boiler switches into the mode of fire keeping at minimum boiler temperature.
Device is designed to enable connection of alternative external thermostat instead of the room temperature sensor. Short circuit of contacts in case of low temperature starts the heating process described above. When contacts are open, the regulator will keep the minimum boiler temperature.
Attention! If the external thermostat is connected at the place for connection of the room temperature sensor, temperature set by the room thermostat button has no influence on regulation process and the room temperature will depend only on the temperature set by the external temperature.
Parameter **[Fc 1]** - means that exhaust gas temperature sensor is connected to the additional sensor connection. In this case the value set with additional thermostat knob specifies desired exhaust gas temperature. If the controller is in WORK mode and boiler water temperature has reached value set with **[P 65]** parameter, then exhaust gas temperature drop below temperature set with additional thermostat knob will stop the fan. If central heating pump is in **[Pr 1]** mode, the pump will also stop in this case. Additionally, if exhaust gas temperature is below desired temperature, this will also be signalled with quick blinking of thermostat indicator.

Error messages

Boiler regulator permanently tests correct function of the internal systems and of the boiler temperature sensor. When the error is detected, regulator stops flue gas fan, C.H. pump and at the same, the appropriate error message is displayed. In case of accident it is necessary to stop the boiler by the main switch. Ensure permanent operation of the circuiting pump by direct connection to the electricity mains. Ensure proper fuel combustion in the boiler and contact contracted Service Company.

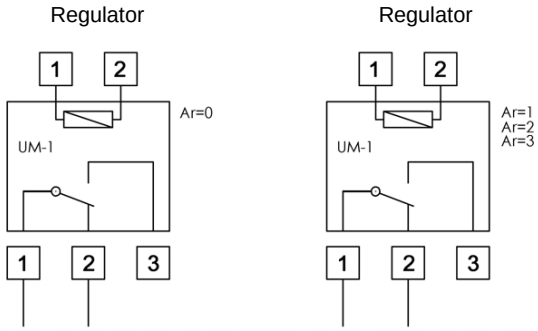
When the error **[E 1]** is displayed, it means fault (short circuit) in the circuit of the boiler temperature sensor or temperature under -9°C. The **[E 2]** is displayed, if the boiler is being overheated. The **[E 3]** means error and overheating at the same time. When the **[E 1]** error is displays without possibility to remove it by pressing the STOP button, despite the boiler temperature is under 90°C, it might mean permanent damage of the boiler temperature sensor (e.g. in case, that the boiler was overheated to the temperature over 150°C). Error **[E 8]** indicates flue gas sensor failure. In this case, the regulator will not control fuel shortage.

Disassembly of appliance

In case of need, disassembly regulator from system:
- turn the main switch off
- disconnect boiler from electricity mains
- unmount cover of the boiler´s control panel
- disconnect all connectors with cables from regulator
- unmount regulator from opening on the control panel of the boiler

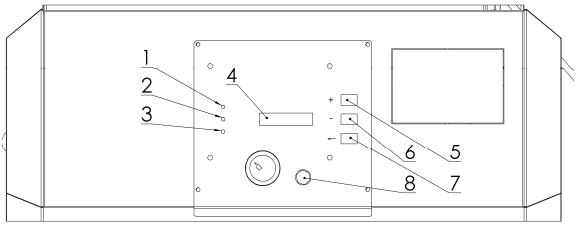
⚠ WARNING: TO PREVENT FROM INJURY BY ELECTRICITY, DO NOT UNMOUNT THE COVER BEFORE DISCONNECTION FROM ELECTRICITY MAINS.

Connection of module UM-1



Pic. 1: Gas boiler, electric boiler Alarm, other devices

ATTACK DPX LAMBDA



1. – Green control light
2. – Yellow Green control light
3. – Red Green control light
4. - Display
5. – Button „+“
6. – Button „-„
7. – Button ←“
8. – Reset of emergency thermostat

Control light 1:Lights, when the boiler was switched on by „+“(5), expires automatically after burning out (fuel is gone and boiler is switched off). Expires also in case, when the boiler was switched off manually by „-“ button (6).

Control light 2: Lights, when following errors occure:

- *incorrectly measured values of the flue gas temperature*
- *see chapter **Errors and warnings***

Control light 3: Lights or flickers, when error or warning occurs:

- *STB on - Reset (error, message (3)lights)*
- *incorrectly measured values of boiler temperature(error, message (3)lights)*
- *Too high temperature of flue gas (warning, message (3)flickers)*
- *Overheating – do not open! (Boiler temperature over 90°C, warning flickers display 3)*
- *see chapter Errors and warnings*

Display 4: Diplays operation data for different settings at errors. In case that the boiler is switched off and no error is displayed, illumination of display expires after 15 minutes.

Button 5 (**+**): After first key depression, the dipslay illumination is on. Boiler is switsched on after repeated depression of the key - heating up or loading is possible afterwards. Also another settings given in the menu can be done via this button (see below - button 7).

Button 6 (**-**): Serves to switch the boiler off. This function is used only for emergency shut down, e.g. if there is no water in the heating system or if the sensor for overheating is not working. Also another settings given in the menu can be done via this button (see below - button 7).

Button 7 (←): After first key depression, the dipslay illumination is on. Enter the „Selection“ menu via repeated depression of the key. Afterwards, by „+“ (5) or „–“(6) button it is possible to get several information and to perform different settings.

! Buttons 5 and 6 have different functions.

Button 8: *Reset of the emergency thermostat button (STB)*
If the STB was switched on because of too high boiler temperature (≥95˚C) and the boiler temperature decreased to 85°C, it is possible to reset the STB by removing cover (8) and pressing the key underneath (8). Error is removed automatically. If fault occures again, it is necessary to inform technician.
Reasons:low warmth offtake, power failure, circuiting pump - faulty mixing valve. To decrease temperature to 85°C, regulators switches connecting pump on.

⚠ If the flue gas fan is not working, the boiler door must not be opened!

Purpose of usage

Ecological warmwater boiler

Ecological warmwater boiler Attack DPX is designed for heating of dwelling houses and similar objects. The boiler is designed for burning wood only. Any dry wood can be used for burning, mainly logs. Also wood of bigger diameter, blocks, can be used, which reduces nominal output but prolongs burning time. The boiler cannot be used for burning filedust and small wooden debris. This can be burnt only in small amount together with logs (max. 10%). Due to its large feed hopper you can avoid the most demandable operation of preparation and cutting the wood into smaller pieces.**Location of the boilers in living spaces (including halls) is inadmissible!**

Technical description

The boiler is designed for combustion of wood on the principle of wood gasifying using a flue gas fan sucking flue gas from the boiler.
The body of the boiler is a weldment of metal steel plates of 6 mm thickness. It includes a feed hopper with a heatproof shaped piece that has an oblong opening for transition of flue gas and gas. Under it in the after-combustion space there is an ash pan In the rear part of the boiler there is there is a pipe exchanger with turbulators joined by vertical flue channel with a fuel cut-off flap in the upper part. There is also a suction branch for connection to the flue.
In the front wall in the upper part there is a feeding door and in the bottom part there is an ash door. Between the door, under the front cover is the flap of the primary and secondary air. In the left cover, in the level of the feeding door, there is a pull rod of the heating up flap controlled by the door and the exchanger cleaning lever.
The body of the boiler is from the outside insulated by mineral fleece put under the covers of outside jacket.In the upper part of the boiler there is a control board for electromechanical regulation.

Technical description ATTACK DPX STANDARD

Operation prescriptions

Preparation of the boiler for operation

Before putting the boiler into operation make sure whether the system is filled with water and deareated. Make also sure, that it does not come to decrease of heating water pressure. Check sensors of boiler, safety thermostats and manometer, placed in casings in the rear boiler part, rearward. Check tightness and construction of flue gas ducting. The boiler can be operated only in accordance with these instructions in order to work properly. It can be operated only by an adult. When installing the boiler, lay something under the rear part to elevate it in 10 mm for better flushing and deareating. Boiler must be attended only by the trained adult person with completed elementary education.

Attention

After the first heating up, there can be condensation and condensate may leak. This is not a defect Condensation disappears after longer heating. When burning smaller wooden waste it is necessary to check the temperature of flue gas which must not overcome 320°C. Otherwise the fan can be

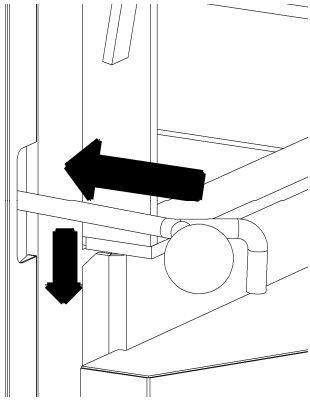
damaged. Creation of tar and condensate in the feed hopper is a phenomenon accompanying wood gasifying.

If the boiler was out of order for a longer time (switched off,broke down), it is necessary to use extreme caution when putting into operation again. In not working boiler, the pump can be blocked, water can leak or the boiler could get frost in winter.

Heating up and operation

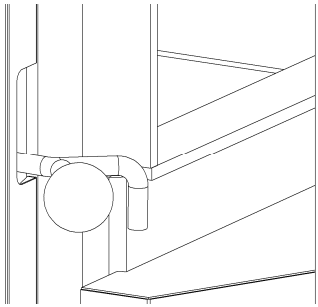
Before you fire up the fuel, open the feeding door and push the pull rod of the heating up flap, which is pulled out, back to the basic position, until the trimmer engages (like at the closed door, see the picture).

Set the flue gas thermostat to „0°C“. Put the refractory adapting piece on the thin layer of wood (cca 50mm) through the upper door - there should be a 4–3 cm gap inbetween. Put the chippings on this layer. Then put the paper or the fire wool on the chippings. Put cca 2 layers of thin dry wood on the top. Fill the chamber to the top with used firewood. Turn on the suction fan and shut the feeding door to the gap of cca 15mm. Set the required water temperature (80-90°C) on the output regulator. When it is burning sufficiently (cca 10 minutes), close the feeding door. Set the flue gas thermostat to the operation position (with the white mark above, cca 90° to the right form the zero position - it depends on the flue gas temperature, at which is the boiler shut down required after burning out of the fuel).



Push backwards and down

Position after pushing backwards and down



⚠ **CAUTION: During the operation, the pull rod of fuel cut-off flap must be shifted in by door into closed flap position, otherwise the fan can be damaged.**

To gasify wood, there must be a reduction zone in the boiler (a layer of charcoal on the ceramic shaped piece in the feed hopper). The layer can be created by combustion of dry wood of proper size. When wet wood is burned, the boiler is not working as a gasifying boiler and the consumption

of wood rises, output is lower than demanded and the service life of boiler as well as that of flue is shortened. If the draft is as specified, the boiler works up to 70% of output even without a fan.

Electromechanical boiler regulation

Boiler regulation is executed by the boiler thermostat on the boiler panel, by which is the ventilator controlled according to the set output temperature of the water.

The required boiler operation temperature should be set on the boiler thermostat. On the panel there is also the flue gas thermostat, which serves for ventilator shut down shut after burning out of fuel. At heating up it should be set to tehe position of „0°C“. After adequate burning up, set the flue gas thermostat to the operation temperature - the fan has run and it has to shut down only after burning out of fuel. It is possible to observe the optimum position of thermostat according to the sort of the used fuel, chimney draught and another conditions. Watch the output water temperature on the temperature scale of the thermanometer. The irreversible safety thermostat is also located on the panel (version STANDARD and LAMBDA).

Refueling

For refueling open slowly the feeding door. The heating up flap will be thereby also opened. Do not turn off the ventilator. During heating keep the feed hopper always full. To prevent smoke escape into the boiler-room, stoke other fuel only after the original charge is burnt out at least to 1/3 of the feeding content. Then cover live coal with a broad log and fill in as usually. The fuel must not be pressed over the jet as this could cause the jet stuck and the boiler parameters would go wrong.

Technical description of ATTACK DPX PROFI:

During the operation, the display is showing the current temperature of outlet heating water. Rotations of the fan are controlled in the following way:

- if during burning up process the boiler temperature is lower than 45 °C, the fan works with the output set up by the turning of burning up button situated in rear side of regulator in the range of 40 - 100 %. (you can see it on the display, from r4 = 40% to r9 = 90 %, rF=100%), for boiler temperature higher than 45°C, the fan works up to 100%.
- if the temperature of heating water during the operation is more than 10°C lower than the one set up by the turning button, the fan works in 100 % output.
- if the temperature of heating water is lower than 10°C from the temperature set up by the turning button of the boiler thermostat, the regulator decreases the output of ventilator according to the difference between these temperatures but only to the output not lower than 40%.
- if the boiler temperature is higher or equal to the temperature set up by the turning button of the boiler thermostat, the fan switches off.
- the ventilator switches on again after decreasing the boiler temperature in o 5°C comparing to the set up temperature.

The regulation of boiler ensures that the pump for central heating switches off when the temperature of oulet water in the boiler decreases under 60°C. The pump switches on again by the temperature higher than 65°C. This is a prevention against tarring and the water steam condensation in the boiler hopper.

To prevent explosion of accumulated gas during ignition, the boiler regulator ensures purging of gas in the boiler in 5 seconds and then each minute until 9 minutes according to the position of the turning post-purge time button in the rear part of the regulator. During the set up there is always information on the display which lasts 2 seconds (P1,...., P9, P-). In case you do not wish purging of gas in the boiler, it is necessary to set up (P--).

To make the process of burning up the boiler stable, there is a burning up system installed in the regulator. After plugging in or stopping the alarm the regulator is automatically set up to the process of burning up and this mode is signalled by a shining dot on the display. The process of burning up

is finished when the dot stops shining and the boiler temperature reaches the value set up by the thermostat. In case the temperature in the boiler does not exceed 65 °C in 2 hours of burning up time, the regulator stops the flue gas ventilator and switches on the control light - fuel shortage.
In the time of burning out the boiler when the temperature falls under 65 °C and this condition lasts for more than 30 minutes, the regulator stops the flue-gas fan and the control light of fuel shortage shines on.

Fuel shortage

When the temperature of heating water in the boiler falls under 65 °C and this condition lasts for more than 30 minutes, the regulator stops the flue-gas fan and the control light of fuel shortage shines on. If in the burning up process the boiler temperature does not raise to more than 65°C, fuel shortage will be shining on the display for more than 2 hours. To start the regulation again, it is necessary to:
- refuel the boiler;
- burn the boiler up
- turn the turning button of the boiler thermostat into the maximum left position and thus stop the alarm;
-wait until the control light of fuel shortage flickers;
- by turning button of the boiler thermostat set up the required temperature of the boiler and the regulator starts the process of burning up

Boiler overheating

If the temperature of the boiler raises to more than 105 °C, the regulator stops the flue-gas fan and the control light of boiler overheating shines on. For new start it is necessary to:

- wait until the boiler temperature falls
- remove the cause of boiler overheating (e.g. refill missing water into the central heating circuit)

⚠ **Warning! Water can be refilled only after the boiler temperature falls under 40°C.**

- turn the button of the boiler thermostat into the maximum left position ad thus stop the alarm
- wait until the control light of boiler overheating starts flickering;
- to start the regulator again, set up the required temperature of the boiler by the turning button of the thermostat;

If the temperature falls under 60 °C, the regulator comes into the burning up mode.

Methods of regulation of the ATTACK DPX PROFI boiler

The boiler enables regulation of room temperature as well as connecting the sensor of room temperature. If the room temperature is lower than the set up one, the control light near the button of thermostat shines on, which means that the boiler must keep the set up temperature. After reaching the required temperature the control light switchces off, the suction fan switches off and the boiler starts burning at the temperature of 65 °C.
For the purposes of timing regulation by room temperature it is possible to connect any arbitrary programmable thermostat with the terminals for the sensor of room temperature. In this case, the turning button of the room thermostat is not working.

If you do not wish to use the room thermostat nor the room sensor, the inlet terminals must be short-circuited. In this case only the boiler thermostat is working.

The mixing valve with the electric drive can be also connected to the boiler regulator . (This system is not standardly delivered with the boiler).

Error messages

The boiler regulator constantly verifies the functions of internal systems and of the sensor of boiler temperature. After finding out the defect, the regulator switches off the flue-gas fan, the central heating pump and at the same time the defect shows on the display. In the case of breakdown it is necessary to switch the boiler off by the main switch,to assure the continuous operation of the central heating pump by plugging into the mains, the fuel must be burnt thoroughly and the contract service company contacted.
If E1 fault appears on the display, it means the damage of the sensor of boiler temperature.

Technical description of the ATTACK DPX LAMBDA:

Combustion regulation

The boiler output is regulated by means of the exhaust temperature – to the O2 value and by means of air flaps - actuators for the primary air and secondary air. The burn-off occurs with the adjusted exhaust temperature set value. If the boiler temperature increases to 90°C (Over temperature) because there is too much fuel (buffer is fully loaded), the exhaust fan is switched off, the primary air flap is closed and the secondary air flap is opened on 25%. If the boiler temperature decreases to to less than 88.5°C, the secondary air flap is opened for 30sec on 100% (chimney cleaning), afterwards the primary air flap is regulated following exhaust temperature requirement.
The automatic switch off of the boiler: Switching off the boiler after the fuel is used, can be alternatively done by means of exhaust temperature (TAG) or by the O2 value (function adjustable).
Switch off by exhaust gas temperature adjustment: If the fuel is used and the exhaust gas temperature decreases for less than 25% of the nominal exhaust temperature, the boiler is switched off after 15 minutes. This is recommended only with very big woodlogs or with very humid fuel.
Switch off by Oxygene: If the boiler runs for longer than 45 minutes and the O2 value rises for 15 minutes over 14%, the boiler is switched off. This should be the standard function, because cooling down of the boiler by the chimney is limited. The remaining rest of coal makes easier renewed firing and proves the lowest issues while heating-up.
After boiler switch off, the exhaust fan is switched off, the primary air flap is closed and the secondary air flap still remains on 25% open until the exhaust temperature sinks under 100°C.
After switching off the boiler (automatically or manually): The primary air flap V1 is closed (0%), the exhaust temperature is >100°C, the secondary air flap (V2) stays open to min. 25% and the automatic operation continuation remains deactivated.

Heating-up and refuelling:

Basically: Before heating up, pay attention to heating system pressure (water level)!
Fuel has to be ready in the boiler!
Ignit the fuel (use operation prescriptions of the boiler)
Check requirement for warmth and external temperature, as well as the residual supply in the hopper

Heating-up or refuelling only:
If it is possible due to the requirement for warmth and residual supply in the hopper, check thermometers in the hopper.
Right firing-up follow (see operating instructions to the boiler)!
Effect: Maximum exploitation of the fuel.
Introduction: Make up the fire first, when the boiler is switched off (control light 1 does not shine),

Additional fuelling in "Boiler ON" status
The fuel has to be loaded immediately and the filling door must be immediately closed!

Functions and text display at heating-up or refuel

After pressing the button "+" (see button 5 in chap. 1.3), starts the process that includes following steps:

- The boiler is switched on; control light 1 shines; the ignition mode runs.
- Display shows text:

DO NOT OPEN!
PLEASE, WAIT

- The exhaust fan and the combustion control are switched on.
- The loading pump, the return- and loading valve regulation are switched on.
- The alternative energy generator is deactivated by means of an automatic change-over contact.
- After 5 sec. appears the text is displayed:

FILLING DOOR UNLOCKED

and the electromagnetic door lock (if available) is released for 10sec.

- After 10 sec. appears the text on display:

CAUTION!
Open slowly!

- After 5 sec. appears the text on display:

Heating-up

Prepare and ignit the fuel as it is given in the manual on the page 11, shut the feeding doors!

- If the (firing) bar is full and the filling and firing up is finished, close the doors.
- If the bar is full or the firing or filling process exceeds 15 minutes, it is switched to the operation display.
- The controller switches off the boiler after 15 min., if: **1)** was not fired, the controller, however, start the burning mode because of mistaken actuation with the key "+"; **2)** the fire goes out after doors were closed because not enough kindling was used or too wet fuel was loaded.

Operating mode display while the boiler is switched on

The text is displayed:
Boiler temp.
[°C]

After 5 sec. appears the text on display:
Exhaust temp.
[°C]

This text is displayed every 5 sec.

Too high exhaust temperature

If the exhaust temperature increases to ≥ 300°C because the filling-, cinder- or firing door were opened for too long time, appears the text "*Exhaust temperature too high*" - (see display). In this case please:

Close the door(s) immediately!

If the exhaust temperature exceeds 350°C, the exhaust fan is switched off for safety reasons; when

Temperature reaches 299°C and less, the exhaust fan is switched on again. This is protection against exhaust fan and/or the exhaust sensor damage.

Boiler overheating
If the buffer is completely filled because too much fuel was loaded, the boiler temperature increases to more than 90°C. Overheating occures and the exhaust fan is automatically switched off. The display flashes and the text display appears:

Over temp.
DO NOT OPEN!

Boiler door(s) may not be opened! Overheating brings high consumption of fuel and ecological damages.

Operating mode display while the boiler is switched off
If the fuel is used, the controller switches off the boiler automatically; however, the boiler also can be switched off manually with the "+" button (this serves only for the security disconnection, e.g.: no water in the boiler). Directly after switching off, the text display occures:
After 15 min. becomes the lighting of the text display) switched off.

Operating mode display while the boiler is switched off
If the fuel is consumed, the controller switches off the boiler automatically; however, the boiler also can by hand with the button "-" switched off (this serves only for security disconnection, e.g.: when there is no water in the boiler). Directly after switching off, the text display occures:

BOILER TEMPERATURE
°C

After 15 min. is illumination of the text display switched off.

Automatic protection functions
If the boiler is not heated within 7 days, the exhaust fan is switched on for 2 min. and the boiler is "rinsed" with fresh air to keep it dry. At the same time, the return valve and loading valve work and the loading pump is switched on for 10 seconds. During this process the text display indicates:

PROTECTION FUNCTION
PLEASE WAIT

After finishing the protection functions, display is automatically switched to the operating mode.

Information about current operation staten about toperating state .
The menu button"←"allows entrance into menu "Selection" in which different submenus can be selected and the first submenu "Information" appears immediately. With the menu button "←" you enter into submenu "Information" where you can get different information with buttons "+" and "-". To exit from the menu use " ←" button; after exit it is automatically switched to operation display. If no button is pressed for 30 min., it is automatically switched to operation display.
If error or excessive temperature appears, the menu will be left automatically. Display shows following information:

Menu	Submenu	Indication
Information	Boiler set to °C --	Shows adjusted temperature of water in boiler.
	Boiler temperature °C ---.-	Actual value. Shows actual temperature of water in boiler.
	Flue gas set to °C ---.-	Shows adjusted temperature of flue gas.
	Flue gas temperature °C ---.-	Shows actual temperature of flue gas.
	O2 set to % --.-	Shows adjusted O2 content in the flue gas.
	O2 % --.-	Shows actual O2 content in the flue gas.
	CO2 set to % --.-	Shows adjusted CO2 content in the flue gas.
	CO2 % --.-	Shows actual CO2 value.Tip: for calculation, max. 20,3% of CO2 is used as fixed value.
	Suction fan ON/OFF	Operation state of the fan.
	Circulating pump ON/OFF	Operation state of the circulating fan.
	Primary motor % --.-	Position of the primary motor shield .
	Secondary motor % --.-	Position of the secondary motor shield.
	Lambda --.-	Ratio of air (actual value) Tip: for calculation, max. 20,3% of CO2 is used as fixed value.
	Efficiency ETA – F (%) --.-	Grade of burning efficiency – actual value For calculation, air temperature 35°C is used.
	Complete temperature excess (%) --.-	Represents ratio of temperature excess (%) at complete combustion time (summary of operation hours)
	Temperature excess- 10 refuellings (%) --.-	Represents ratio of temperature excess after refuelling In (%) at last 10 refuellings
	Operation hours h --.-	Represents operation hours of boiler. Po 60 000 hodinách sa počítadlo vynuluje
	Software --.--	Programm version number
	Serial number ---------	Serial or production number of regulator
Test of device		
Safety test		
Setting		
FINISH		

Settings for the commission of the ATTACK DPX LAMBDA .

The start-up of device is enabled, when the minimum requirements for test- or heating operation are fulfilled (see chapter 1.2). Afterwards it is necessary to carry out the following settings.

Settings with usage of the service technician´ s code

The menu button „←“enables entrance into menu “Selection”, where it is possible to select the „Settings“ submenu by buttons “+” or “-”. The choice of “Settings” is confirmed with the button “ „←”.

The exit from the submenu automatically occurs after setting of the "connection valve" with the menu button “ ←”; after exit it is automatically switched to the operating display.

If no button is pressed for 1 min., it is automatically switched to the operation display.

Settings:

Menu	**Submenu**	**Indication**
Information		
Test of device		
Safety test		
Setting	Code insert ---	Set the code by „+“ button. Random number lights on the left side. Insert code and confirm by „←“ button. Technician´s number is available from supplier of the boiler.
	01 :Language German DE English GB Italian IT French FR Swedish SE Polish PL Slovak SK Czech CZ Dutch NL Danish DK Hungarian HU Slovenian SI	Function: Setting of national language
	02 : Setting of boiler °C 85	Function: Set boiler temperature Producer: 85°C Range of setting: 75°C – 85°C
	03 : Setting of TAG °C 180	Function: After setting of flue gas temperature (nominal 180°C boiler output). Producer: 180°C Range of setting: 110°C up to 240°C Tip: TAG = flue gas temperature
	04 : Setting of O_2 % 6,0	Function: Setting of O_2 value for combustion 6 % Producer 6,0 % Range of setting: 4,0 % up to 8,0 %
	05 : Start TAD K 60	Function: to reach sufficient output before the feeding door is closed

		Producer: 60K Range of setting: 25K up to125K Tip: TAD= temperature difference. It is a difference between flue gas temperature and temperature in the boilers
	06 : Disconnection O_2 TAG	Function: Boiler for wood combustion is switched off in consequence of: O2 – indicates higher level of coal residual. (easier start) TAG – indicates minimum coal residual (recommended by combustion problems – deformed or wet fuel) Producer: O2 Setting: O2/TAG
	10 : V1 Primary air Air (%) 85	Function: By flue gas sensor error or oxygen sensor error it regulates adjusted temperature. It serves as temporary solution, until the error is removed - *it is not a standard operation function in any case!* Producer: 85 % Range of setting: 0 % - 100 %
	11 : V2 Secondary air Air (%) 40	Function: By flue gas sensor error or oxygen sensor error it regulates adjusted temperature. It serves as temporary solution, until the error is removed - *it is not a standard operation function in any case!* Producer: 40%C Range of setting: 0 % - 100%
Finish		

After the settings are made, the test of device is performed, correct device functions are and the safety test is done as well.

Cancelling of the manufacturer´s function

This process requires code of manufacturer. It is possible to set operation hours of the boiler, to reset number of overheatings, as well as last 10 combustions can be set to zero value.
Enter and exit to appropriate submenu is similar as in the Chapter 8.1. If no button is pressed within 1 minute, regulator automatically switches to operation display.

Selection	Submenu	Indication
Information		
Test of device		
Safety test		
Setting	Code ---	Set the code by „+“ button. Chnage the random number that appears on the right to the manufacturer´s code and confirm by „←“. Next setting appears.
	Cancel YES/NO	Choose YES by „+“ Next explanation appears after pressing„←“ and menu expires. By pressing YES solution to set boiler operation hours and complete excess temperature, while last 10 combustions are set to 0
	33 : Output decrease YES/NO	Choose YES by „+“ Next explanation appears after pressing„←“ and menu expires. By pressing YES solution, boiler output decreases to 20% in case that boiler temperature excesses adjusted value for 2K
Finish		

Testing
Test of device and safety test has to be done in the presence of the heating technician!

Test of device
Test of device is possible, only if the boiler is shut down!
Test is possible, only if there is no danger of overheating!
Test is selected and done by the menu button „←“ (enter into Selection menu). Next menu selection is displayed by the „test of device“ button and confirmed by „←“ button. Then, the appropriate step of the test is activated by the „+“ or deactivated by the „-“. Every next step is selected by „←“. Test of device is finished with the last point of the test by the „←“ button and display is automatically switched to operation mode. Test can be aborted also by early pressing of the „+“ and „-“ buttons at once.
In case that no button is pressed within 15 minutes, display is automatically switched to operation mode.

Selection	Submenu	
Information		
Test of device	Scale of O2 End of the test (+,-)	After pressing the „+“ button, „calibrate“ appears on dipslay. Calibration takes apporximately 600 seconds. Automatic calibration is done only, when there was no fire in the boiler for 48 hours and operation time of the sesor is longer than 200 hours. sa na displeji objaví „kalibrovať“ During manual setting of the scale there can be no fire in the boiler, nor smoulder of fuel residuals! If it is not necessary to adjust the scale, press „←“ for the next step. Tip: Early exit from menu is possible by pressing of „+“ and „-“.
	Flue gas fan End of the test (+,-)	By pressing + switch on the flue gas fan By pressing – switch off the flue gas fan By pressing ← select next point of the test
	Circulating pump End of the test (+,-)	By pressing + switch on circuiting pump By pressing – switch off circuiting pump By pressing ← select next point of the test
	Primary motor End of the test (+,-)	By pressing + open primary air flap By pressing – close primary air flap By pressing ← select next point of the test
	Secondary motor End of the test (+,-)	By pressing + open secondary air flap By pressing – close secondary air flap By pressing ← select next point of the test
	Illumination End of the test (+,-)	By pressing + switch on illumination of text display By pressing – switch off illumination of text display By pressing ← select next point of the test
	Control light 1 End of the test (+,-)	By pressing + switch on control light1 By pressing – switch off kontrolku 1 By pressing ← select next point of the test
	Control light 2 End of the test (+,-)	By pressing + switch on control light 2 By pressing – switch off control light 2 By pressing ← select next point of the test
	Control light 3 End of the test (+,-)	By pressing + switch on control light 3 By pressing – switch off control light 3 By pressing ← select next point of the test
Safety test		
Setting		
FINISH		

Safety test

If the boiler is switched on, it is possible to select the safety test. However, it is necessary to let the boiler work for 1 hour at least, to achieve output appropriate to the normal operation state.
Test is selected and performed by the ← button (enter into menu „Selection“), then by the button - select from menu „Safety test“ and confirm selection by the ← button. Safety test starts

automatically. During this test, it is necessary to hold the + button within 30 seconds, to prevent automatic stop of the test (see explanation in the schedule below).
Test is time limited for 30 minutes. It is automatically stopped or aborted if:

1. Boiler temperature increases to 110°C
2. The + button was not held for 30 seconds

In this case, regulator automatically switches to operation display.

Menu	Submenu	Indication
Information		
Test of device		
Safety test		Test is time limited for 30 minutes
	Safety test + (sec.) 30 Boiler temperature (°C) --,-	After selection of the test, it is necessary to hold the + button within 30 seconds, otherwise is the test automatically stopped. If the boiler temperature increases to 95°C - 100°C, the STB is switched on and the fan is switched off. After few seconds, the text: „STB on“ appears on display. It means, that the STB test was successfully done. After pressing the „+“ button again, circuiting pump stays stopped, until temperature of 110°C is reached, to perform the test of overheating protection. Boiler temperature must be kept under 110°C to confirm, that the test of overheating protection was successfully done or finished.
Setting		
FINISH		

Maintenance of the heating system and of the boiler

At least once in fortnight check or fill up water in the heating system. If the boiler is out of operation during winter, water can be frost in the system. Therefore it is better to discharge water of the system or fill in the antifreeze agent. Otherwise discharge water only in critical situations and for the shortest possible time. After heating season is finished, clean the boiler thoroughly, replace damaged parts. Twice a year clean the radial impeller of the ventilator and its air chamber.

Changing of door sealing cord

Dismantle the old sealing cord with a screwdriver and clean the rabbet where it was placed. Take the new sealing cord and put its begining on the horizontal parts of the rabbet. Press it into the rabbet on the circumference of the door with your hand or light knock of the hammer.

Adjustment of hinges

After some time, the sealing cord in the door gets deformed. Therefore, to ensure tightness of the door, it is necessary to change the position of the door. The position is changed by tightening the hinges of the door. Feeding door and bottom door are joined to the body with two hinges which are attached to the door with a long pin. To change adjustment of hinges, it is necessary to remove the pin and screw the hinge by turning it. Fit the door on and insert the pin into the hinge.

Nozzle body change

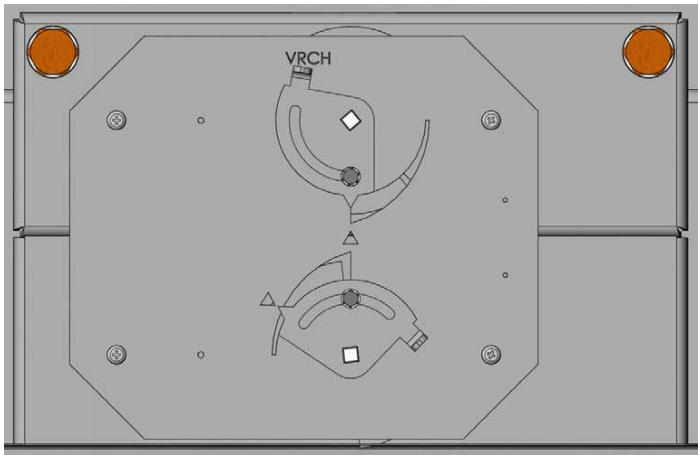
The body of nozzle is placed in the boiler body in a nozzle holder. In the lower part is the nozzle body sealed by boiler lute and in the upper part by a packing cord. When exchanging the nozzle, remove the packing cord from the rabbet by a screwdriver. Remove the nozzle body and clean the holder thoroughly from the tar and old lute. Put the nozzle body insulation on the cleaned surface. Take the nozzle and put it on the holder, so that the shorter wall was in the rear part of the boiler. The lateral clearance must be the same. Take the new set of packing cords of the nozzles and with a light knock, press it into the gap to be at the same level with the nozzle.

Setting of the boiler´s combustion

The boiler´s combustion is set by the regulation flaps of primary and secondary air. Boilers are from the production set for the most optimal burning conditions according to emissions and flue gas tempertature. Setting can be executed only by producer or by trained serviceman.

Factory setting of the regulation flaps:

Both, primary and secondary air arrows has to mark precut marks for proper setting (see picture).



Permanent-heat operation

Permanent-heat operation of the boiler means that the fire can be kept during the night without heating up daily, but only in winter. This way of operation shortens the service life of the boiler. For permanent-heat operation prepare the boiler in the following way:

Put a few bigger logs (4-6) on the glowing layer

- Shut the mixing valve. After closing the valve the temperature of water rises to 80- 90°C.
- Suction fan turns off.
- Regulation flap controlled by regulator shuts automatically and the fan is switched off.

In the boiler prepared like this, burning is kept for more than 12 hours. During permanent-heat operation, the temperature of water in the boiler is 80 - 90°C.

Boiler cleaning

The boiler must be cleaned regularly and properly every 3-5 days because ash subsided in the feed hopper together with condensates and tar decreases output and lifetime of the boiler and isolates heat-exchanging surface. When there is too much ash, there is not enough space for burning out of fuel and a holder of ceramic jet as well as the whole boiler can be damaged. When cleaning the boiler, firstly turn the ventilator on, open the feeding door and wipe the ash through a

slot into bottom space. Leave long unburnt logs in the feed hopper. Move the lever for exchanger cleaning for several times. After opening the bottom cleaning hole, take ash and soot out. After opening the bottom door clean the bottom space. Cleaning interval depends on the quality of wood (moisture content), heating intensity, draft of the flue and other circumstances. We recommend to clean the boiler once a week. Do not take the refractory adapting piece out when cleaning. Once a year minimally clean the radial impeller of the fan and check fouling of regulation of primary and secondary air flowing into feeding chamber through the cleaning hole and clean with a screwdriver, if it is necessary. It influences the output and quality of burning.
WARNING - Regular and proper cleaning is important for permanent output and service life of the boiler. In case of insufficient cleaning, the boiler can be damaged and guarantee expires.

Prescribed fuel

Specified fuel is dried cut wood and logs of 80-150mm diameter, with min. 12% and max. 20% moisture content and calorific value of 15 - 17MJ/kg. It is also possible to burn big pieces of wooden waste with coarse wood logs.

Note

It is necessary to cut the logs of bigger dimensions into halves or quarters (because of the requirement of operation to nominal output). You can burn hard as well as soft wood. Wood must be dried! Boiler output depends on the moisture content of wood. Output and function of the boiler is guaranteed for maximum moisture content of 20%. Guarantee expires at boiler operation with cut wood with humidity over 20%.

Energy content of mostly used kinds of wood

Wood	*Thermal capacity per1 kg*		
	kcal	*MJ*	*kWh*
Spruce	*3900*	*16,25*	*4,5*
Pine	*3800*	*15,80*	*4,4*
Birch	*3750*	*15,50*	*4,3*
Oak	*3600*	*15,10*	*4,2*
Beech	*3450*	*14,40*	*4,0*

Assembly and installation of the boiler

Boiler installation

Boiler can be installed only by person with valid certificate for installation and assembly of heat technology devices. The project in conformity with valid prescriptions has to be made out for installation. Before installation of boiler, the assembly worker has to check all data given in the production label for their conformity with data in the project and attached documentation. Boiler connection has to be in conformity with valid prescriptions, norms, regulations and this manual for attendance.

Producer is not responsible for damages caused by faulty connection, respectively by incorrect operation.

Placing of boiler

Boiler is designed for installation and operation in the premises with basic enviroment (AA5/AB5) under STN 33 2000-3. For the installation it is necessary to keep safe distance of its surface from flammable materials by the degree of flammability and combustibility:

- from materials of flammability B, C1 a C2 200mm
- from materials of flammability C3 400mm
- from materials with degree of flammability not tested by STN 73 0853 400mm Examples of building material devided by the degree of flammability:
- degree A non-combustible (bricks, blocks,ceramic linings, morter, plaster)
- degree B partially flammable (heraklith, lignos, boards from bazalt felt)
- degree C1 very difficult to ignite (broadleaves - beech, oak; plywood, werzalit, hard paper)
- degree C2 intermediate flammable (coniferous species -wood, pine, spruce pulpboard, solodur)
- degree C3 easy flammable (wood pulpboards, polyurethane, PVC, foam rubber, styrofoam)

Non-combustible board or protecting fire- screen (on the protected subject) must exceed the boiler dimensions for at least 300mm. All the other subjects from combustible materials, which are situated near the boiler, have to be protected by non-combustible board or fire-screen, if it is impossible to keep the safe distance.
If the boiler is located on the floor from combustible materials, the floor must be covered with the non-combustible, thermal insulating pad exceeding the boiler planview for at least 100mm on the side with feeding door and ash door . All the solid materials of "A" degree of combustibility can be used as a fireproof thermal insulation.

If the boiler is placed in the boiler room, there must be a free space of min.1 meter in front of the boiler and of 0,5m from the side walls and from the rear side. Above the boiler there must be a free space of min. 1meter. This space is necessary for basic operation, maintenance and service of the boiler. Location of the boiler in the dwelling spaces (including halls) is not allowed! The cross section of opening for air inlet to the boiler room is recommended to be at least 200 cm², depending on the boiler output.

ATTENTION!
The objects from easily combustible materials cannot be placed on the boiler or the nereby in the distance shorter than the safe distance.
If there is a danger of fire or blow up during the work (e.g. the work with texture materials, sizing materials, etc.) the boiler must be out off operation.

Air inlet
For correct boiler operation, it is necessary to provide sufficient air inlet for combustion. Minimum cross section of the opening for fersh air inlet is 200 cm².

Connection of boiler to the heating system
Only trained service technician is allowed to install the ATTACK DPX boiler and to do the service actions. Before boiler installation into older heating system, it is necessary to wash (to clean) the whole system. Heating system has to be filled with water, conforming to requirements of the STN 07 7401:1991, particularly its callosity cannot exceed 1mmol/l and concentration of Ca2+ must not exceed 0,3 m mol/l.

In case that these conditions will not be kept, the boiler warranty expires!

Chimney
Connection of the appliance to the flue must be always done with approval of authorized chimney-sweeping company. There must always be sufficient draft in the flue and flue gas must be draught to the atmosphere in all possible operation conditions. For the correct operation of the boiler, the independent flue must be dimensioned in the right way, because combustion, output and service life of boiler depends on the draught. The draught is influenced by the section of flue, height and

roughness of the internal wall. Into the flue where the boiler is attached, no other appliance can be attached. The flue diameter must not be smaller than the outlet on the boiler. Flue draught must have the specified values. But it must not be too high so as not to decrease the efficiency of boiler and interrupt burning. If the draught is too strong, install a throttle valve between the flue and boiler.
Information values of the chimney´s cross section:

20 x 20cm	min. height 7m
O 20cm	min. height 8m
15 x 15cm	min. height 11m
O 16cm	min. height 12m

Exact chimney dimension is stated by the STN 73 42 10. Prescribed chimney draught is given in the Technical parameters.

Exhaust pipe

Exhaust pipe must have the outlet into the chimney. If the boiler cannot be attached to the chimney directly, the exhaust pipe must be as short as possible and not longer than 1m without heating surface and it must rise in direction to the flue. Exhaust pipes must be tight and resistant against flue gas leakage and cleanable from inside. Exhaust pipes must not lead through other´s dwelling and utility premises and the internal section of the exhaust pipe must not taper in direction to the flue. Usage of bents is not suitable.

Boiler connection to the electricity mains

The boiler is connected to the mains of 230 V/50 Hz by a supply cord and plug. The voltage is of M type and when replaced, the same type must be used by a service oragnization.The appliance must be located in such a way that the plug was within the reach of the attendance.
(under STN EN 60 335-1 + A11:1997).

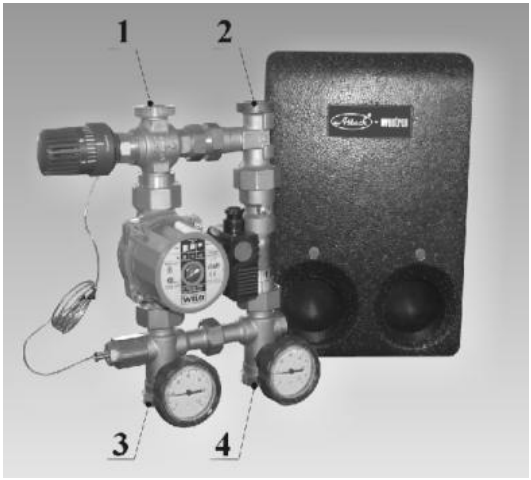
Selection and method of connection of regulation and control elements

Boiler is supplied with basic equipment of regulation and control elements. Connection of these elements is given in the scheme of connection. It is recommended to extend boiler regulation with other regulation elements that enable more comfortable and more economical operation. Every pump in the systme must be controlled by individual thermostat to prevent boiler undercooling at the return water inlet (C.H. return connection) under 65°C.
Connection of these additional elements is planned by projectant, adequately to specific conditions of the heating system. Electric installation connected to sufficient boiler equipment must be done by specialist, in conformity with valid norms.

⚠ **Warning: heating system must be equipped with safety valve against overpressure.**

Boiler protection against corrosion

Suitable solution of this problem is usage of mixing device (Regumat Attack-Oventrop). Both solutions enable creation of separate boiler and heating circuit. Thereby it is prevented from boiler undercooling under 65°C and the condensation of water steams, acids and tars in the boiler hopper is eliminated. Mixing device Regumat keeps constant temperature of return heating water, enetring into boiler at 65°C, when the thermostatic head is set to 5th-6th degree. At usage of individual thermal regulation valve, it is possible to regulate heating water temperature by setting of the flap, independently from temperature of water in the boiler. Temperature in the boiler has to be kept in the range of 80-90°C.



Technical parameters REGUMAT ATTACK OVENTROP:

Clarity **DN 25**	Clarity **DN 32**
Maximum pressure 10 bar	Maximum pressure 10 bar
Maximum temperature 120°C	Maximum temperature 110°C
Value kvs 3,9	Value kvs 0

Regumat consists from three way mixing valve, circuitingpump, closing valve, thermometers and isolation. This solution is advantegeus because its compactness, simple attendance and guaranteed protection of boiler´s heat exchanger

REGUMAT for boiler		**Ordering code**
ATTACK DPX15, DPX25, DPX30, DPX35	(DN25)	DPP25003
ATTACK DPX40, DPX45	(DN32)	DPP25006

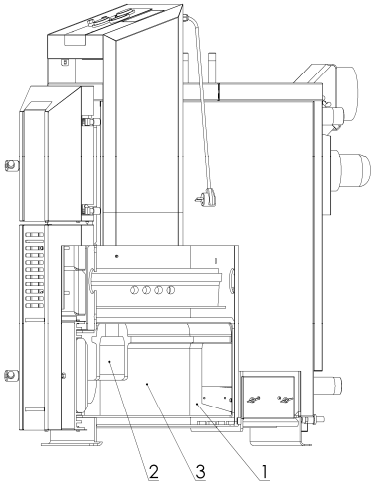
Obligate norms for projecting and assembly of boilers:

STN EN 303-5	Solid fuel boilers for heating
STN 73 42 10	Manufacturing of chimneys and flue connections
STN 92 0300	Fire safety of local appliances and heat sources
STN EN 60 335.1 +A11	Safety of electroappliances for household
STN 06 10 00	Local devices for solid, liquid and vapour fuels
STN 06 03 10	Central heating, projecting and assembly
STN 06 08 30	Security facilities for central heating and D.H.W. warming
STN 07 74 01	Water and steam for thermal energetic appliances with operation steam pressure tp to 8 MPa
STN 332000 4-46	Electrical building installations – part 4: safety ensurance

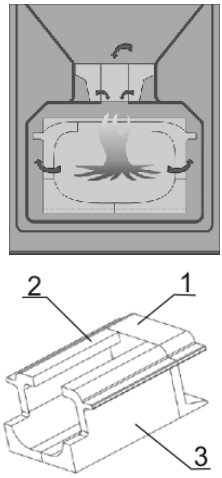
STN 332000–3	Electrical building installations – part 3: Determination of basic characteristics
EN ISO 11202:2009	Measuring of emission levels of acoustical pressure at attendance work place and other determined places.
ČSN EN ISO 12100-2:2004	Safety of machine appliances - Basic terms, general rules for construction, Part 2: Technical rules
ČSN EN 953+A1	Safety of machine appliances – protection covers
ČSN ISO 7574-2	Acoustics. Statistical methods for determination and verification of stated values. Emission of noise of machines and appliances. Part 2: Methods for individual machines.
ČSN ISO 1819:1993	Institution for continual costs transfer. Safety prescriptions.
ČSN 06 1008:1997	Fire safety of thermal appliances.
STN EN ISO 15614-1	Requirements for quality of fusion welding of metal materials.
STN EN 287-1	Welding of reserved technical appliances
STN 07 0240	Low-pressure boilers, technical prescriptions
STN 07 0245	Warm water boilers with output up to 50 kW. Technical requirements, testing
STN 07 7401	Water and steam for thermal energetic appliances with operation steam overpressure pu to 8 MPa.
STN 73 4210	Construction of chimneys and flue connections and connection of devices
STN 92 0300:1997	Minimum distance of external surface of device or flue gas connection from building constructions... …

Installation and exchange of fireproof adapting pieces

Put the rear part into the lower chamber, the intagliated part backwards. It is necessary to put it in horizontal position and then turn it. Put it into the center of the chamber and push it closely to the rear steel plate. Insert the left front part pos.2 into lower chamber. It is necessary to insert this part horizontally and then turn it. Use the same method for the right front part of the ash pan pos. 3. Put both these parts together and then push them closely to the rear part of the ash pan.

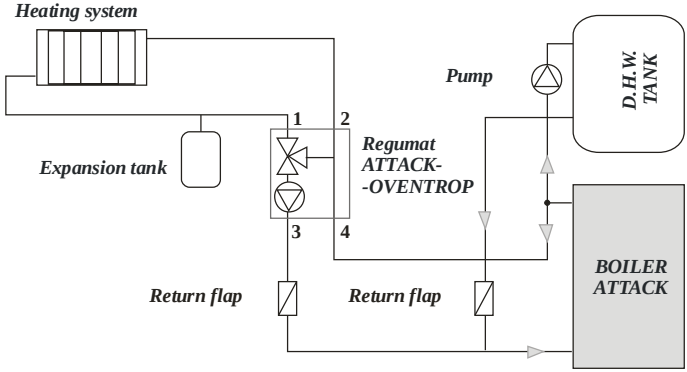


Slit of boiler – combustion chamber

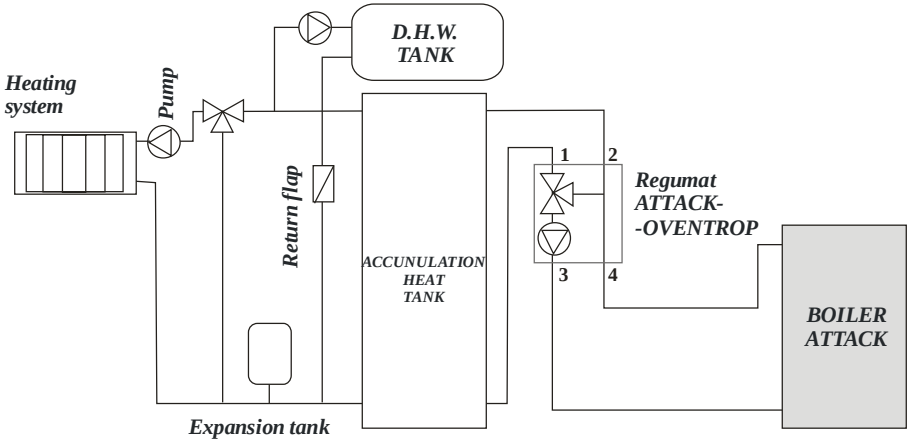


Connection schemes

Scheme of connection with regulation system REGUMAT ATTACK-OVENTROP



Scheme of connection with accumulation heat tank



Boiler must permanently work at nominal output. For the case of heat offtake, when the boilers works at output lower than the nominal, it is necessary to connect the boiler to heat storage tank with minimum volume of 460 l (STN EN 303-5, article 4.2.5)

.

Connection with heat accumulators

Connection system is based on principle of heating up of water in accumulation tanks, where the warmth is gradually taken away from the tanks according to the request from the heating system. By the operation with several heating ups at full performance, accumulation tanks will be heated for the temperature of 90-100°C. Heating with accumulation tanks in connection with the ATTACK DPX boiler brings more advantages. To the main advantages belongs longer boiler life-time and also lower consumption of fuel. Recommended volumes of accumulation tanks according to boiler output are following:

DPX25 - 1500 - 2000 l
DPX35 - 2000 - 2500 l
DPX45 - 2500 - 3000 l

Operation with accumulation tanks

After heat-up phase, the boiler heats the water in the accumulation tank to 90 - 100°C by full output in 1-3 feedings. After burn-out, the heat is taken through the three-way valve only from the accumulation tank. The offtake period depends on the tank volume and external temperature. In heating season it can be 1 - 3 days (if the prescribed min. volume is respected). If it is not possible to use the prescribed volume of the tank, it is recommended to use at least one tank of 500l volume for start and finish boiler operation. **Minimum volume of accumulation tank is given in the tabel of technical parameters.**

Standardly delivered accumulation tanks

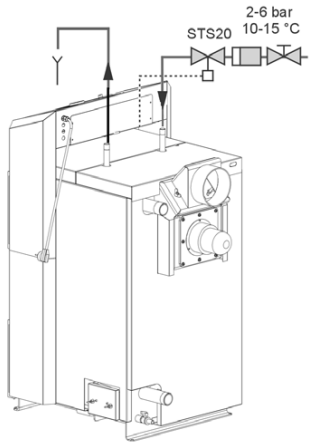
Type of tank	Volume (l)	Diameter (mm) without isolation	Height (mm) without isolation	Heat-exchange surface (m2)
AK 500	488	650	1621	-
AK800	732	790	1686	-
AK1000	915	790	2041	-
AS500	474	650	1621	1,8
AS800	713	790	1686	2,4
AS1000	891	790	2041	3,0

Tank isolation
Accumulation tanks ATTACK AK500, AK800, AK1000, AS500, AS800 and AS1000 are delivered with detachable isolation of soft polyurethane with red leatherette surface.

Advantages
Boiler installation with accumulation tank brings several advantages:
- lower fuel consumption (up to 30%). Boiler works at full output, until the fuel is burned-out, while optimum efficiency is kept
- long chimney and boiler life-time and minimum creation of acids and condensate
- option to combine with other heat sources - solar collectors, etc.
- combination of boiler with underfloor heating
- comfortable and ecological heating

Boiler protection against overheating

ATTENTION: Following the norm EN 303-5, the aftercooling circuit against boiler overheating cannot be used for other purposes than boiler protection against overheating. **Valve at the cooling water inlet into cooling circuit must be permanently open and boiler cooling circuit must be connected to functional distribution of cooling water (e.g. to cold water distribution of water supply system) with temperature of 10-15°C and operation pressure of 2-6 bar.** The STS20 valve at the aftercooling circuit outlet with sensor in the boiler rear part. Protects boiler against overheating in the following way. If water temperature exceeds 95°C, it lets the water from water supply system into aftercooling circuit to absorb the warmth. In case of boiler overheating and opening of the STS20 valve, the permanent outlet of warmed water from boiler´s aftercooling circuit into flow-off has to be ensured.



In case that circulation of cooling water through aftercooling circuit is not ensured at opening of the thermostatic valve STS20, there is a danger of boiler damage! In this case the warranty for boiler expires.

Transport, manipulation and storaging

Producer puts the article on pallet and fits it on with technological screws. It is packed in the paper box, binded by sticky tape and wrapped into stretched foil.
Transport, manipulation and storaging of packed product is permitted only on this pallet. For manipulation to boiler´s standpoint there are suspension eyes for manipulation with elevator, available after removing of upper cover.
Only approved person can ensure manipulation with the boiler.

Instructions to liquidation of the product after its life-time expiration

Ensure the liquidation of the product (boiler) by repurchase / collection of raw materials, respectively use regulated dumping ground, controlled by appropriate municipal office.

Liquidation of packaging

Liquidate the packaging by repurchase / collection of raw materials, respectively use regulated dumping ground.

Accessories

The ATTACK DPX boiler is delivered functionally tested, wrapped, packed on wooden pallet.
Delivery contents following attachments:
- User manual
- Guarantee letter

Possible faults and methods of their deletion

Fault	Cause	Solution
Control light „Net“ does not lighti	No voltage in mains Incorrectly plugged craddle into socket Faulty network switch Broken inlet conductor	Check Check Replace Replace
Boiler does not reach required parameters	Water shortage in the system High pump output Boiler output is not sufficiently dimmensioned for concrete system Low quality wood Heat-up flap does not seal Low chimney draught Long heating-up or operation with opened heat-up flap Deformed fan wings Unsufficiently cleaned boiler Blocked air inlet into combustion chamber.	Refill Set overflow and switching Matter of project Combust dry and cut wood Repair New chimney, unsuitable connection Put throttle into flue gas connection Close heat-up flap Replace Clean Clean
Door do not seal	Damaged glass cord Jet gets blocked Low chimney draught	Replace, adjust door hinges Do not burn small wood pieces and wood crust Faulty chimney
Fan has no rotations or it is noisy	When using irreversible safety thermostat, it comes to overheating Blocked radial impeller Faulty condensator Faulty motor Faulty contact in the socket of motor inlet conductor	Push reset button Clean the fan Replace Replace Check

Errors and warnings with the ATTACK DPX LAMBDA system

By following errors and warnings it is not possible to burn in the boiler:
- red display 3 lights (error), operation of the wood boiler is not possible
- red display 3 flickers (warning), correct operation of the wood boiler is not possible. This text automatically expires after the cause is removed.

Boiler operation is possible by emergency programm, if:
- yellow display 2 (warning) lights

All emergency programs in the regulator menu are automatically expalined and serve for the short-time keeping of the heating operation. Thereby:
Immediate error removal is recommended!!
Too long operation by appropriate emergency program may cause chimney and boiler damage - the warranty is not valid.

Emergency thermostat is switched on (error)

STB on reset Boiler temperature (°C)	**Cause:**	Temperature in the boiler >95°C is caused by fuel surplus, power shortage, fault at warmth offtake (or in circuiting pump)
	Control light 3 red	lights
	Correction:	Use less fuel! Check warmth offtake!
	Reset:	Screw out the cover (8) and press STB button placed underneath, when the text „boiler temperature 85°C appears“! Error is automatically removed within few seconds.
	Emergency program:	No
	Actions of regulator:	Automatic boiler stop. Boiler temperature > 86°C, offtake of residual warmth is switched off V1 and V2 are adjusted after setting
	If the error repeats, it is necessary to inform the service technician.	

Incorrectly measured values of boiler temperature (error)

Error in measuring of boiler temperature Boiler temperature (°C)	Cause:	Measured values < -20°C, or > +150°C
	Control light 3 red	Lights
	Correction:	Check sockets and conductors! Replace sensors, if necessary!
	Reset:	Automatically after removing the cause
	Emergency program:	No
	Actions of regulator:	Automatic stop of flue gas fan and circuiting pump V1=0 %, V2= min. 25 % open

Too high flue gas temperature (warning)

Temperature of flue gas is too high Boiler temperature (°C)	Cause: Control light 3 red: Correction: Reset: **Emergency program:** Actions of regulator:	Flue gas temperature > 300°C Flickers By heating-up and refuelling, close the door immendiately In operation: After burning-out, clean the boiler Automatically at flue gas temperature <299°C No Flue gas temperature > 350°C, flue gas fan stop Flue gas temperature < 299°C, flue gas fan start

Overheating (warning)

Overheating DO NOT OPEN! Boiler temperature (°C)	Cause: Control light 3 red: Correction: Reset: **Emergency program:** Actions of regulator:	Boiler is on and its temperature is > 90°C Fuel surplus, circuiting pump error Flickers Load less fuel or remove error Automatically at boiler temperature < 89°C No Boiler temperature > 90°C, flue gas fan stop V1=0 %, V2=min. 25 % open Boiler temperature < 89°C, flue gas fan start. V1 and V2 are adjusted after setting.

Incorrectly measured values of flue gas temperature (error)

Error in measuring of temperature Fluegas temperature (°C)	Cause: Control light 2 yellow Correction: Reset: **Emergency program:** Actions of regulator:	Measured values < -20°C or > 499°C Lights Check sockets and inlet conductors! Replace sensors, if necessary! Automatically after error removing. Yes, burn-out possible Regulator works with big amount of alternative air V1 and V2. Boiler has to be switched off manually and let to burn out by the „-“ button. While warming, no line graph is displayed.

Antifreeze protection (warning)

Antifreeze protection Boiler temperature (°C)	Cause: Control light 2 yellow: Correction: Reset: Emergency program: Actions of regulator:	Boiler temperature is < 7°C, when the boiler is switched off Lights Do heat-up and burn-out Automatically with new burn-out (button +), or when the boiler temperature is > 8°C Yes, burn-out is possible - do that! At boiler temperature < 7°C: Circuiting pump starts By this action, if there is warmth of the tank, it is taken off. If there is no warmth in the tank, the freezing point in circuiting water decreases. At boiler temperature > 8°C: Circuiting pump is switched off

Incorrectly measured values of Oxygene sensor – Lambda probe (error)

Error in measuring O2 Boiler temperature (°C)	Cause: Control light 2 yellow Correction: Reset: Emergency program: Actions of regulator:	Non-apparent heating by means of sensor error in electric circuit or short circuit Lights Check sockets and conductors. Demount and clean oxygene sensor. If it is necessary, replace it. Automatically after error removing and resetting of scale of the oxygene sensor. Regulator works with alternative air V1 and V2. After burning-out, the boiler must be manually switched off by the „-“ button.
	Not to shorten the boiler´s life-time, it is necessary to remove the error immediately! Possible expiration of warranty!	

Errors, functions and actions of regulator - summary

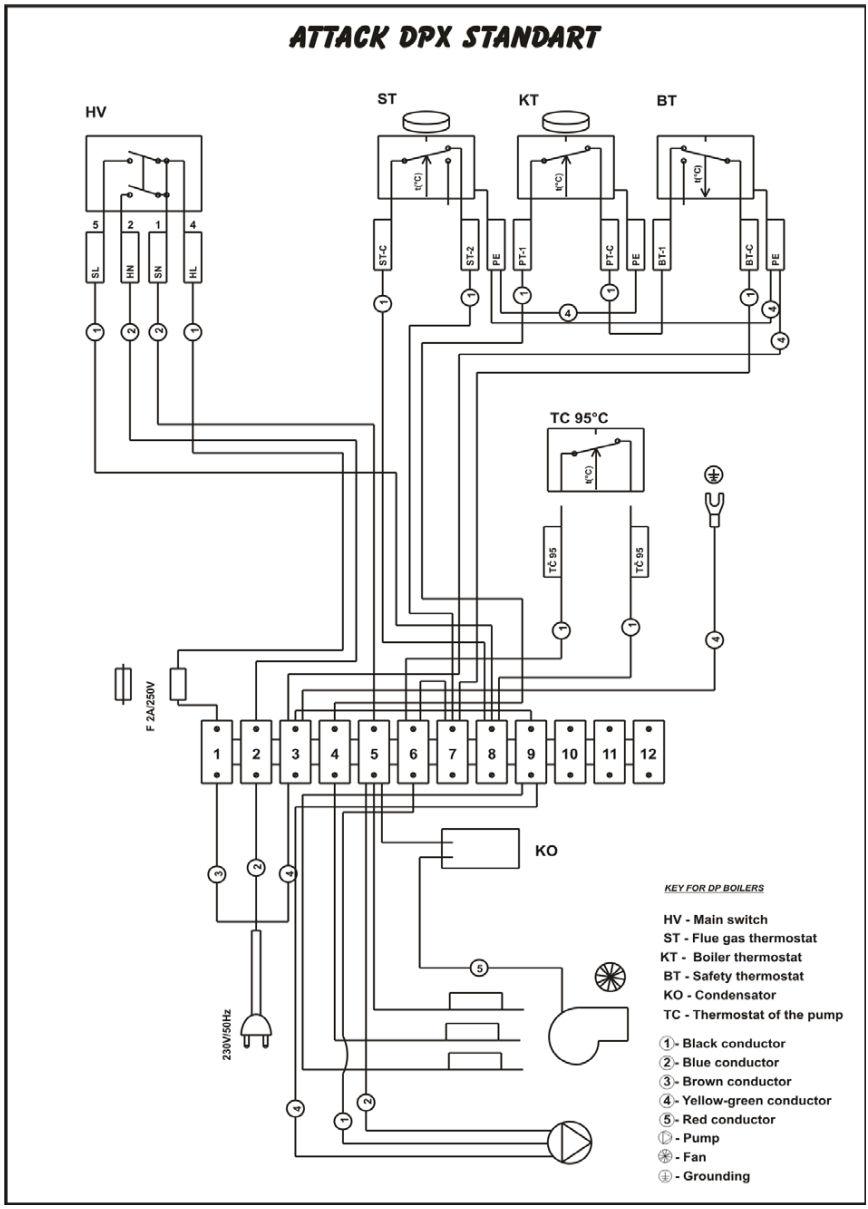
Errors and functions	**Actions or operation of the regulator**
Power failure	When the power is supplied again, the operation state is regenerated, same as it was before.(boiler starts or stops again)
Too high boiler temperature	< 90°C: fan is stopped > 89°C: fan is switched on
Incorrectly measured values of boiler temperature	Stop of flue gas fan and connection pump. It is not possible to turn the boiler on.
Incorrectly measured values of flue gas	It is possible to turn the boiler on. Regulator works with alternative air V1 and V2. After burning-out, the boiler must be switched manually!
Incorrectly measured values of O2 sensor (Lambda probe)	While heating-up, no line graph is dislayed.It is possible to turn the boiler on, regulator works with spare air V1 and V2.
Automatic function of switch	If the boiler is switched on for 30 minutes and flue gas

off by the flue gas sensor	temperature decreases for 25% within 15 minutes, the boiler is switched off.
The STB is started	Residual warmth off-take is stopped, if the boiler temperature is < 85°C. If, then, the boiler temperature increases to > 86°C, usage of residual warmth starts again.
Function of switching contact	When the boiler is switched on: WK/AK is closed When the boiler is switched off and flue gas temperature is <100°C: WK/RK is closed
Error of CPU	All relays are turned off by Hardware Watchdog
Antifreeze protection	When the boiler is switched off and the temperature is < 7°C: Start of connecting pump, Y1 a Y2 = 100%. If boiler temperature increases to > 8°C, connecting pump is stopped. Y1=0%, Y2= 100%.
Protection of flue gas fan and of flue gas sensor against overheating	Flue gas temperature > 350°C, flue gas fan is stopped Flue gas temperature < 299°C, flue gas fan is switched on
Short circuit of the „+“ button	Button of regulator does not react, even not to significant pressure
Enter function (Menu)	After safety time, the menu automatically expires
Safety test	It takes max. 30 min and finishes automatically or it is aborted, if: boiler temperature is > 110°C or the „+“ button was not pressed for 30 seconds
Operation range of automatic setting of C.H. return connection to determined value	Between 60°C and 80°C
Operation without settings controlled by technician	Regulator is adjusted after setting by producer
Data storaging	Only by sufficient energy > 160V.

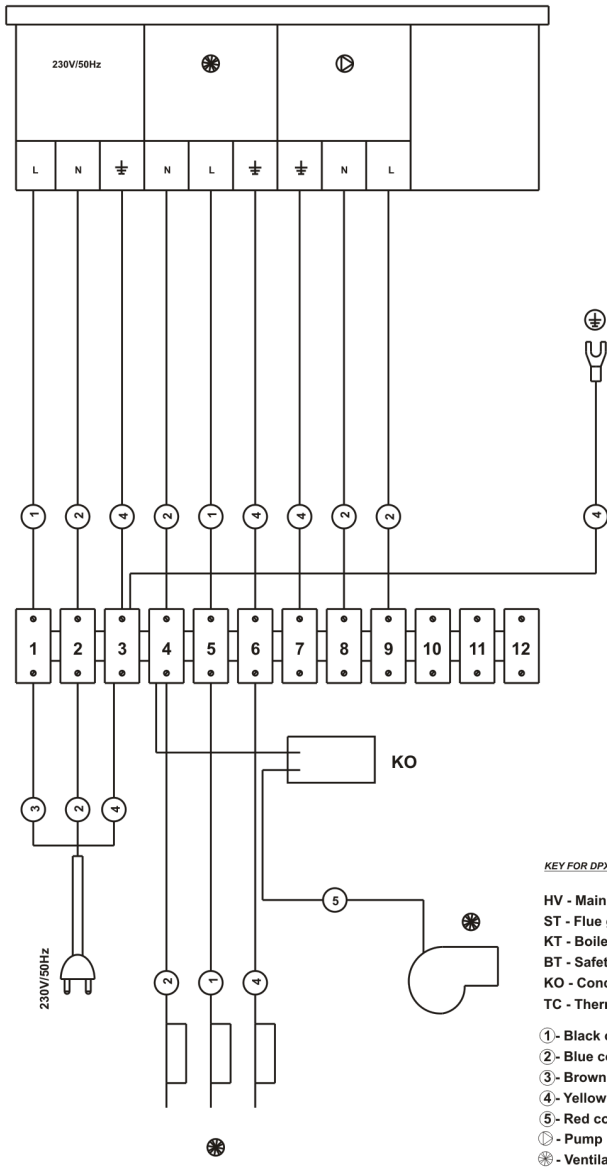
Table of dependence of resistance on temperature of the thermal probe of heating water (Profi version)

Temperature °C	Resistance kOhm		
	MIN		MAX
-55	951	980	1009
-50	1000	1030	1059
-40	1105	1135	1165
-30	1218	1247	1277
-20	1338	1367	1396
-10	1467	1495	1523
0	1603	1630	1656
10	1748	1772	1797
20	1901	1922	1944
25	1980	2000	2020
30	2057	2080	2102
40	2217	2245	2272
50	2383	2417	2451
60	2557	2597	2637
70	2737	2785	2832
80	2924	2980	3035
90	3118	3182	3246
100	3318	3392	3466
110	3523	3607	3691
120	3722	3817	3912
125	3815	3915	4016
130	3901	4008	4114
140	4049	4166	4283
150	4153	4280	4407

Electrical schemes of connection of the ATTACK DPX STANDARD, PROFI, LAMBDA boilers



ATTACK DPX PROFI



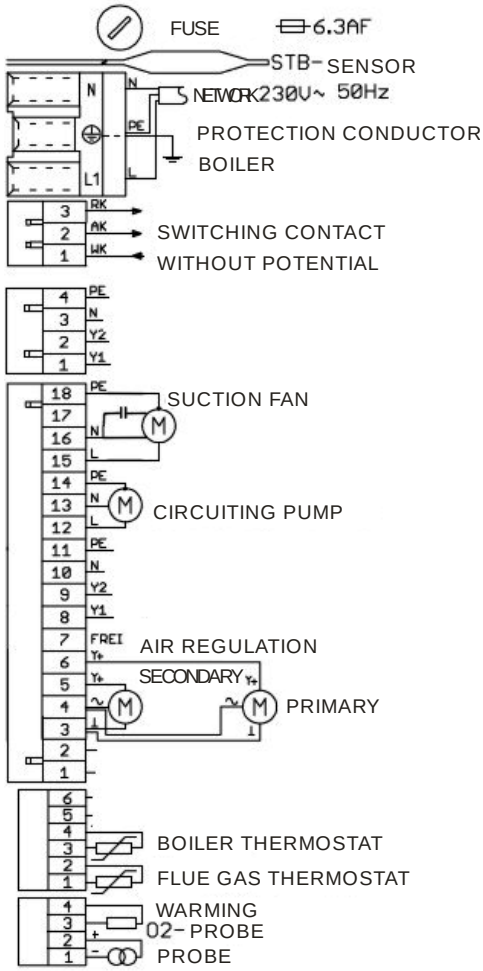
KEY FOR DPX BOILERS

HV - Main switch
ST - Flue gas thermostat
KT - Boiler thermostat
BT - Safety thermostat
KO - Condesator
TC - Thermostat of the pump

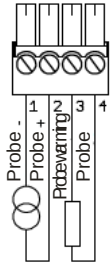
①- Black conductor
②- Blue conductor
③- Brown conductor
④- Yellow-green conductor
⑤- Red conductor
- Pump
- Ventilator
- Grounding

ATTACK DPX LAMBDA

Connection to the network from the bottom side of regulator

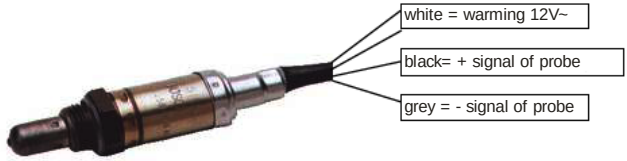


Oxygene probe (Lambda sonda)

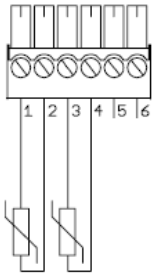


Probe 1: Probe -
Probe 2: Probe +
Probe 3: Probe warming
Probe 4: Probe warming

4-conductor silicone-covered flexicord
with conductor´s crossection of 0,75mm2



Temperature sensor



Terminal 1: Flue gas sensor F1 Pt100
Terminal 2: Flue gas sensor F1 Pt100
Terminal 3: Boiler sensor F2 Pt100
Terminal 4: Boiler sensor F2 Pt100
Terminal 5:
Terminal 6:

Values of resistance:

T = 0°C R = 100,0Ω
T = 20°C R = 107,8Ω
T = 100°C R = 138,5Ω
T = 200°C R = 175,8Ω

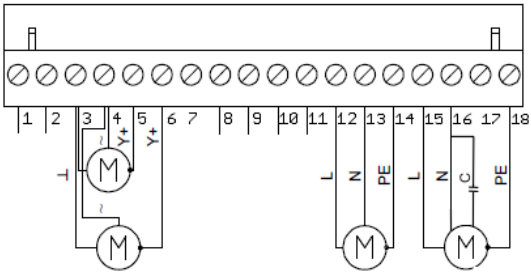
Mount the flue gas sensor into the flue gas connection by the bayonet flange!

Do not extend connection conductor´s of sensors!!!

Boiler sensor and sensor of safety thermostat have to be treated with warmwater paste, put into gasket and tighten by holding spring!

Polarity is irrelevant

Air flapV1 – V2, circuiting pump, suction fan



For connection of circuiting pump and suction fan, use 3-conductor flexicord with conductor´s cross section of 0,75mm2!

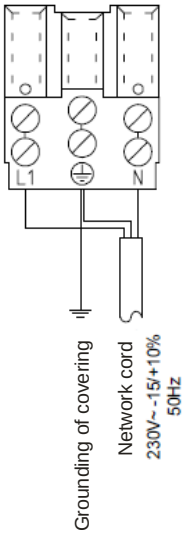
C: SHADING CONDENSATOR

Terminal 3: Connection ⊥
Terminal 4: Connection 24V~
Terminal 5: Regulation signal secondary Y+(0/2-10V)
Terminal 6: Regulation signal primary Y+(0/2-10V)

Terminal 12: L: Circuiting pump
Terminal 13: N: Circuiting pump
Terminal 14: PE: Circuiting pump

Terminal 15: L: Suction fan
Terminal 16: N: Suction fan
Terminal 17: L: Free
Terminal 18: PE: Suction fan

Electric voltage 230V



L1 L: Phase
⏚ PE: Grounding
N N: Zero conductor

Network breaker max. 10A
3-conductor flexicord 1,5mm2

Attention! Boiler covering has to be grounded through grounding of connection cord!

N Neutral conductor
PE Grounding conductor
L Current phase
WK Main relay contact
AK Normally opened relay contact
RK Normally closed relay contact

ORIGINAL ES DECLARATION OF CONFORMITY NR. POZ-003/110110

Producer:
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Person entrusted to complete technical documentation:
Ing. Miroslav Pochyba
Designer
Attack s.r.o.
DIELENSKÁ KRUŽNÁ 5020
03861 VRÚTKY

Description of appliance:
Wood gasifying boiler ATTACK DPX
Name: WOOD GAISFYING BOILER ATTACK DPX 15, 25, 30, 35, 40, 45,
IN DESIGN „STANDARD“, „PROFI“, „LAMBDA“

Type:	ATTACK DPX 15, 25, 30, 35, 40, 45
Max. operation pressure:	250 kPa
Water volume:	80, 100, 110, 125 l
Electr. connection:	230 V/50 Hz/10 A
Electr. input:	60 W
Fuel:	Dry wood with heat value 15 - 17 MJ/kg, humidity 12 - 20%, diameter 80 - 150 mm
Nominal output:	15, 25, 30, 35, 40, 45 kW

I, Rudolf Bakala, corporate representative of the ATTACK, s.r.o. company declare, that aforementioned article fulfills requirements of technical prescriptions and norms given below, under the conditions specified for using it is safe, it is produced in conformity with technical documentation and with the norms and regulations given in this document.
Harmonized applied norms:
ČSN EN ISO 12100-2:2004, ČSN EN 953+A1:2009, EN ISO 11202:2009
ČSN EN 60335-1 ed.2:2003, ČSN EN 60335-2-102:2007
ČSN EN 55014-1 ed.3:2007, ČSN EN 61000-6-3 ed.2:2007
ČSN EN 61000-3-2 ed.3:2006, ČSN EN 61000-3-3:1997
ČSN EN 55014-2:1998

Related technical norms:
ČSN EN 303-5:2000, ČSN 06 1008:1997, STN 07 240, STN 07 0245, STN 07 7401, STN 73 4210, STN EN ISO 15614-1, STN EN 287-1, STN 92 0300:1997, ČSN ISO 1819:1993, ČSN ISO 7574-2

European directives:

2004/108/ES, 2006/95/ES, 2006/42/ES

Certificates:
E-30-01097-09 z 30.11.2009
E-30-01096-09 z 30.11.2009

Last to digits of the year , when was the product marked by CE: 10

Person approved to make out declaration by name of producer:
Ing. Miroslav Pochyba
Designer
Attack s.r.o.
DIELENSKÁ KRUŽNÁ 5020
03861 VRÚTKY

Signature:

Place: Vrútky
Date: 11.01.2010

Rudolf Bakala

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Notes:

This page serves for confirming service examinations and is kept by a customer ! ! !

RECORD ON PUTTING THE BOILER TO OPERATION

Production number.....
Date of putting to operation.....
Service organization:
.....
.Stamp, signature
.....

Data on the customer (llegible)
Name and surname:
.....
Street: .....
Post code, town:.
.....
Tel. No. .....

Obligatory service examination after the 1st year of operation

Date : .....Stamp, signature of service organization : .....

Obligatory service examination after the 2nd year of operation

Date : .....Stamp, signature of service organization : .....

Obligatory service examination after the 3 rd year of operation

Date : .....Stamp, signature of service organization : .....

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ATTACK, s.r.o. – 10/2013